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ANNUAL SUMMARY, 1891.

The present annual summary completes the discussion of the meteorology of India for the year 1891.

It should be noted that in the monthly reviews it is attempted to present the facts and data from two different points of view. Meteorological data in India are chiefly utilised:—

- 1st, in the discussion of the prevalence and spread of diseases, more especially of cholera and other diseases of an epidemic character;
- 2nd, in connection with agricultural questions, more especially the progress and character of the crops as determined by the weather conditions of the period.

India has hence been divided into two groups or divisions from what may be termed the medical and agricultural standpoints. For medical statistics India is arranged into the following provinces, which are believed to be fairly homogeneous so far as the conditions of the prevalence of the more common diseases are concerned:—

- (1) Burma Coast and Bay Islands.
- (2) Burma Inland.
- (3) Assam.
- (4) Bengal and Orissa.
- (5) Gangetic Plain and Chota Nagpur.
- (6) Upper Sub-Himalayas, including the sub-montane districts of the North-Western Provinces and the Punjab, and the North and Central Punjab.
- (7) Indus Valley and North-West Rajputana.
- (8) South-East Rajputana, Central India and Guzerat.
- (9) Deccan.
- (10) West Coast.
- (11) South India.

The data for each of these divisions are given in Table I in larger figures, and the portion of each monthly review entitled "Summary of the chief features of the weather in India during the month" is intended to give a sketch of the broader and more important features of the weather in India for the use of all those who study the relations between disease and weather in India.

According to the second method of division into districts or meteorological areas from the agricultural stand-

point, there are 52 divisions, each of which is fairly homogeneous so far as the distribution of rainfall and the general character of the crops and the conditions of their growth are concerned. The following gives the meteorological provinces and districts arranged under the respective political areas or provinces to which they belong:—

Political division or province.	Meteorological district.	Meteorological province.
BURMA . . .	Tenasserim	Burma Coast and Bay Islands.
	Lower Burma	
	Arakan	
ASSAM . . .	Central Burma	Burma Inland.
	Upper Burma	
	Assam (Surma)	
BENGAL . . .	" (Brahmaputra)	Assam.
	East Bengal	
	Deltaic Bengal	
NORTH-WESTERN PROVINCES AND OUDH.	Central Bengal	Bengal and Orissa.
	North Bengal	
	Orissa	
PUNJAB . . .	Chota Nagpur	Gangetic Plain and Chota Nagpur.
	Behar, South	
	" North	
RAJPUTANA . . .	North-Western Provinces, East	Upper Sub-Himalayas.
	Cudh, South	
	" North	
CENTRAL INDIA . . .	North-Western Provinces Himalayas	Indus Valley and North-West Rajputana.
	North-Western Provinces, Submontane	
	Punjab, Central	
BOMBAY . . .	" Submontane	Upper Sub-Himalayas.
	" North	
	Punjab, West	
NORTH-WESTERN PROVINCES.	Sind and Cutch	Indus Valley and North-West Rajputana.
	Rajputana, West	
	" East	
NORTH-WESTERN PROVINCES.	Kattiawar	Indus Valley and North-West Rajputana.
	Central India	
	Guzerat	
NORTH-WESTERN PROVINCES.	North-Western Provinces, West	Indus Valley and North-West Rajputana.

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Political division or province.	Meteorological district.	Meteorological province.
BOMBAY	Bombay Deccan	Deccan.
BERAR	Khandesh	
CENTRAL PROVINCES.	Berar	
	Central Provinces, West	
HYDERABAD OR THE NIZAM'S DOMINIONS.	" Central	Deccan.
	" East	
BOMBAY	Hyderabad, North	West Coast.
	" South	
MADRAS	Konkan	West Coast.
	Malabar	
	Madras, South	South India.
	" South Central	
	" East Coast South	
	" Central	South India.
	Madras, East Coast North	
COORG	Coorg	South India.
MYSORE	Mysore	

The double grouping is shown in Plate I at the end of this part.

The data in Table I in the Monthly Review and in the present annual part are obtained, with a few exceptions, from the observations telegraphed daily to Simla for publication in the Daily Weather Report. In the case of thermometric observations they are telegraphed to the nearest half degree. Hence the maximum and minimum temper-

ature data of the second class observatories derived from these telegraphic reports may differ to some slight extent from the means of the more exact data (recorded to tenths of a degree) tabulated in the observation forms sent into the Calcutta Office, and which are used in the calculation of the temperature data in Table II. There is also another reason why the mean maximum and minimum data in Tables I and II differ to a slight extent. In Table I the daily or 24-hours period is assumed to end at 8 A.M., and in Table II at 4 P.M., and hence the maximum temperature in Table I for any month of thirty-one days at any station gives the mean for thirty-one periods of 24 hours ending at 8 A.M. of the 31st, and in Table II for the same number of 24 hours ending at 4 P.M. at the 31st and hence virtually of a monthly period ending one day later than the former. Similar remarks apply for months of 28, 29 or 30 days. These remarks will explain some of the slight discrepancies which may be found between the maxima and minima mean data in Tables I and II, and hence also in the monthly mean variation temperature data in the monthly reviews, and in the present annual part. It may also be noted that the methods of exposure of the instruments at observatories in India, and of the reduction of the observations and the calculation of mean data have been fully stated and explained in the annual reports of the meteorology of India, and need not be repeated. The reader is referred more especially to the Annual Report for the year 1885 for the fullest information on this subject.

Temperature.

The methods of exposing the thermometers at observatories in India, and of deducing the daily and monthly means from the observed readings of the instruments, are described in pages 18-19 of the Annual Report for 1890.

The variations of the mean temperature of each month from the normal given in Table II of the monthly reviews are deduced from a comparison of the actual monthly means with the normal monthly means (obtained by the same methods) given in Table XII of average monthly temperatures of 88 stations in India and Ceylon, etc., in pages 19 to 22 of the Annual Report for the year 1890. Average data for 134 stations will all also be found in pages 39-42 of the Annual Report for the year 1887. It is hence not necessary to reprint that table. In Table I, published in each monthly review, as in the Daily Weather Report, the mean temperature of the day is calculated by the formula

daily mean = $\frac{\text{maximum} + \text{minimum}}{2}$. It differs from the true daily mean by amounts varying with the season. The variations of the daily or monthly means obtained by this

method from normal daily or monthly means differ very little from those obtained by the more laborious calculation of true daily means and the comparison of these with normal true daily means. In Table I the variations of the monthly mean maximum and minimum temperatures from the normal, as well as the variations of the monthly mean temperature, *i.e.* $(\frac{\text{maximum} + \text{minimum}}{2})$ are given.

Normal monthly mean maximum and minimum temperatures for stations in India have not hitherto been given in the annual reports or other publications of the department. The three following tables supply this information. Table I gives the monthly mean maximum temperature and the annual mean maximum temperature for 94 stations in India; Table II gives similar information for the minimum temperature; Table III gives the normal mean daily range of temperature for each month of the year and for the year.

These averages or normal means, it should be stated, are derived from observations of the same period from 1878

to 1888 for all stations with the exception of the following:—

STATION.	Period.
Dhubri	1881-1888.
Jeypore	1881-1888.
Sambhar	1880-1888.
Indore	1879-1888.
Mangalore	1880-1888.
Mercara	1880-1888.
Darjeeling	1881-1888.

The means are hence obtained from observations of the same period of 11 years at almost all stations, and are hence strictly comparable so far as the time element is concerned. In the calculation of these means all observations which comparison showed to be erroneous were rejected. These were, however, few in number and affect very slightly the means of two or three stations only.

These means will be re-calculated at the end of each period of five or six years, the observations for the period being combined with those previously utilized.

TABLE I.—Giving average monthly maximum temperatures of 94 stations in India, etc.

STATION.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
Moulmein	88.2	91.2	93.8	94.3	90.2	84.0	82.6	83.1	84.5	88.1	88.4	87.3	88.0
Toungoo	85.4	90.7	97.8	100.2	96.2	88.1	86.3	86.2	88.5	89.8	87.1	84.3	90.1
Rangoon	88.4	92.2	96.5	97.9	92.2	85.9	84.8	84.7	85.5	87.4	87.1	87.3	89.2
Bassein	85.1	89.3	94.1	95.7	92.0	86.1	84.7	84.3	85.3	86.9	86.0	84.5	87.8
Diamond Island	83.8	84.0	85.4	88.6	88.9	85.4	84.5	84.4	84.9	86.4	85.8	84.6	85.6
Akyab	81.3	84.5	88.4	91.8	90.4	85.9	84.5	84.2	86.4	88.1	85.7	82.1	86.1
Thayetmyo	85.2	92.3	99.8	103.0	99.5	90.8	88.8	88.8	89.5	90.2	87.4	84.5	91.7
Silchar	76.8	79.7	85.1	87.6	87.9	88.7	90.2	89.2	89.6	88.9	84.6	79.4	85.6
Sibsagar	69.9	72.5	79.2	82.7	86.5	90.0	91.0	90.0	89.0	85.3	78.5	71.8	82.2
Dhubri	73.4	77.1	86.6	88.3	86.1	85.9	87.7	86.8	85.7	85.1	80.0	74.7	83.1
Chittagong	77.5	81.3	86.0	88.4	87.9	86.1	85.5	85.0	86.5	86.5	82.8	77.8	84.3
Dacca	78.1	82.5	90.2	93.2	90.9	88.5	87.6	88.5	88.1	83.8	78.3	86.6	86.6
Jessore	78.1	83.4	92.9	97.4	94.2	91.7	89.5	88.6	89.1	88.8	83.6	77.9	87.9
Calcutta	76.7	81.8	90.7	95.6	93.4	91.4	88.1	87.1	87.4	86.7	81.3	76.0	86.4
Saugor Island	76.5	81.1	87.5	90.8	91.5	90.8	87.7	87.1	87.8	86.9	81.6	75.7	85.4
Burdwan	78.2	83.4	93.9	100.6	96.9	94.4	90.3	89.1	89.5	88.7	82.7	77.6	88.8
Berhampore	76.7	82.2	93.2	100.3	95.5	92.6	89.5	88.5	88.8	87.8	81.9	76.4	87.8
False Point	78.7	82.7	87.9	91.0	91.3	91.0	87.6	87.0	87.9	87.4	82.0	77.1	86.0
Cuttack	84.6	90.2	97.2	102.3	101.0	96.1	89.8	89.4	89.9	90.0	85.2	82.0	91.5
Hazaribagh	72.6	77.8	89.0	98.2	98.0	92.7	84.5	83.6	84.4	83.1	76.7	71.4	84.3
Gaya	75.6	81.7	94.2	103.6	104.1	100.2	91.5	90.1	90.8	89.4	82.3	75.7	89.9
Patna	72.6	78.2	91.4	101.0	99.5	97.0	90.6	89.4	90.4	88.4	81.4	74.0	87.8
Purneah	74.7	79.1	90.6	97.4	94.6	92.7	90.5	89.3	89.2	87.8	82.0	76.1	87.0
Durbhanga	72.0	76.2	87.8	96.3	95.4	92.4	89.1	88.5	88.2	86.2	80.6	73.9	85.6
Benares	74.7	80.8	93.8	103.6	104.5	101.4	91.5	89.9	91.2	90.3	82.2	75.2	89.9
Allahabad	73.6	79.8	93.7	104.0	106.2	102.8	91.2	89.8	90.8	89.9	81.9	74.7	89.9
Gorakhpur	73.4	78.5	91.3	101.0	100.6	98.5	91.3	90.4	90.7	88.9	81.7	74.5	88.4
Lucknow	73.8	78.7	91.6	102.2	104.1	102.1	92.0	90.7	91.9	91.2	82.9	75.6	89.7
Bareilly	70.1	75.2	88.0	99.4	102.4	101.2	91.8	90.3	90.5	89.6	81.0	72.6	87.7
Roorkee	69.4	73.5	86.1	97.9	102.0	101.7	91.8	91.0	91.3	89.5	80.4	72.4	87.3
Meerut	70.1	74.8	87.4	98.3	101.8	101.6	92.8	90.9	91.7	90.5	81.1	73.1	87.8
Delhi	71.0	75.6	88.9	100.4	104.4	104.6	94.0	91.9	92.9	92.3	83.7	74.8	89.5
Lahore*	67.3	70.9	84.0	96.4	102.8	105.7	98.8	96.3	96.9	93.4	81.3	71.6	88.8
Ludhiana	67.6	71.9	85.7	97.4	104.1	106.2	98.2	95.9	95.0	92.3	80.4	71.4	88.8
Sialkot	66.7	69.7	82.1	94.8	102.4	105.7	97.7	94.4	95.5	92.2	80.6	70.3	87.7
Rawalpindi	63.3	64.7	77.2	88.0	97.5	103.2	97.8	93.8	93.6	88.2	76.7	67.7	84.3
Peshawar	64.0	65.9	76.9	86.2	97.6	105.6	102.8	99.4	95.6	88.5	77.0	67.8	85.6
Dera Ismail Khan	69.2	71.9	84.2	93.8	103.2	107.6	103.5	101.7	100.6	94.0	81.9	73.1	90.4
Mooltan	69.7	73.2	86.2	97.1	104.2	106.1	103.1	100.2	99.4	94.8	84.5	73.7	91.0
Sirsa	70.8	75.6	85.4	100.2	106.1	106.2	99.9	97.5	98.2	96.2	84.5	74.8	91.3
Jacobabad	73.3	77.2	91.0	101.6	110.2	111.6	107.3	103.3	102.6	97.7	85.8	76.8	94.9
Hyderabad	76.5	80.0	93.5	101.5	106.9	103.0	98.8	95.0	97.0	97.6	87.2	78.9	93.0
Kurrachee	76.5	79.1	85.9	89.1	92.8	93.5	90.1	87.6	88.1	91.2	87.0	80.2	86.8
Jeypore	73.5	78.0	90.3	100.1	105.6	102.9	91.4	89.8	92.8	93.2	84.5	77.5	90.0
Sambhar	72.2	76.5	88.4	98.9	104.6	101.8	91.5	89.0	91.6	91.6	82.4	75.1	88.6
Ajmere	73.9	77.5	89.6	98.1	103.2	100.3	90.9	87.3	90.4	91.5	83.0	76.2	88.5
Deesa	82.2	85.4	95.9	102.3	106.0	101.4	91.2	88.1	92.2	96.0	90.2	84.7	93.0
Rajkot	84.1	87.6	96.8	101.9	105.6	100.0	90.1	88.7	90.9	95.4	90.0	85.5	93.1
Nowgong	75.3	80.4	93.9	103.8	107.5	103.0	89.9	88.5	90.8	90.9	82.1	75.3	90.1
Sutna	74.3	79.3	92.0	101.4	104.6	99.0	86.6	85.6	87.3	87.6	80.1	74.6	87.7
Indore	78.6	82.5	92.8	100.0	102.4	94.1	83.8	82.7	84.8	87.1	81.6	78.2	87.4
Neemuch	77.3	80.5	92.3	100.2	104.1	98.4	86.6	84.4	87.2	89.9	83.3	77.8	88.5
Surat	86.0	89.4	96.1	100.5	97.9	93.8	87.1	86.7	88.1	92.3	89.9	86.5	91.2
Agra	73.4	78.5	92.0	102.5	106.5	105.0	92.8	90.4	92.3	93.3	84.0	76.0	90.6
Jhansi	75.5	80.3	93.3	103.5	107.5	103.4	90.4	88.3	90.9	92.6	83.8	77.9	90.6

* The figures for Lahore have now been corrected for change of site. Hence these values differ from those employed in calculating the values of Table I of the monthly review.

TABLE I.—Giving average monthly maximum temperatures of 94 stations in India, etc.—continued.

STATION.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
Belgaum	82.9	88.6	94.1	96.7	93.2	80.7	75.6	76.2	78.6	82.5	81.7	81.1	84.3
Sholapur	87.0	93.7	100.3	105.1	104.2	94.3	88.6	88.5	88.1	89.2	86.9	84.6	92.5
Poona	84.7	90.6	97.1	100.7	98.1	88.3	81.5	81.7	83.6	87.2	85.0	82.9	88.5
Malegaon	84.9	89.6	97.6	102.7	103.3	94.5	86.5	86.2	87.0	89.5	85.6	82.8	90.9
Akola	84.1	90.2	99.1	105.6	107.1	97.5	87.9	87.2	88.3	90.1	85.8	81.7	92.1
Amraoti	84.0	89.8	99.0	105.7	107.2	96.5	86.7	86.7	87.7	89.5	85.2	81.3	91.6
Khandwa	83.1	88.6	97.9	104.2	106.2	97.3	87.0	86.0	87.4	89.9	85.1	81.3	91.2
Hoshangabad	80.1	85.2	96.5	104.8	107.7	98.0	85.9	85.3	88.1	89.3	83.4	78.7	90.3
Nagpur	82.6	89.2	99.0	105.7	108.6	97.5	87.0	87.5	89.1	89.7	84.1	80.1	91.7
Seoni	79.0	84.0	94.0	101.4	103.2	92.4	83.6	83.4	85.4	86.2	80.6	77.0	87.5
Jubbulpore	77.0	81.9	93.5	101.7	104.8	96.8	85.6	84.8	87.1	87.1	80.7	75.8	88.1
Saugor	76.4	80.5	92.5	101.4	104.6	98.7	84.7	83.5	86.1	86.9	80.6	75.4	87.6
Raipur	80.7	86.8	96.9	104.2	106.4	96.6	86.2	86.3	87.6	88.1	82.0	77.9	90.0
Secunderabad	83.8	90.9	97.9	102.1	102.6	93.2	86.0	86.2	86.5	87.0	82.9	81.4	90.0
Bombay	82.1	82.3	85.7	88.1	90.0	87.4	84.1	83.8	84.3	87.3	86.7	84.1	85.5
Ratnagiri	87.3	86.2	87.7	89.8	90.9	86.2	83.7	83.4	83.9	88.3	90.4	89.2	87.3
Karwar	86.3	86.1	87.7	89.7	89.7	85.0	83.1	82.1	82.6	85.0	86.8	87.0	85.9
Mangalore	87.8	87.7	88.8	90.7	89.9	84.4	82.7	82.4	83.2	85.1	87.1	88.4	86.5
Cochin	88.5	89.4	90.5	91.2	89.3	84.4	83.3	83.0	84.1	85.8	86.7	87.8	87.0
Madura	87.9	91.7	97.0	100.5	100.3	99.0	97.8	96.7	95.8	91.9	87.4	85.9	94.3
Salem	87.9	93.2	98.3	101.0	98.8	94.1	92.7	91.4	91.1	89.3	86.6	85.6	92.5
Coimbatore	86.3	91.9	96.3	98.2	94.9	89.8	87.9	88.3	89.3	88.1	85.7	84.4	90.1
Mercara	76.1	81.2	84.4	84.6	81.2	72.0	68.8	70.7	72.5	75.5	74.9	74.4	76.4
Bangalore	79.1	85.1	90.3	93.3	91.3	84.5	82.0	81.9	81.9	81.0	78.2	77.1	83.8
Negapatam	81.8	84.2	88.6	92.4	95.9	96.7	95.3	93.0	92.1	87.8	83.6	80.8	89.4
Trichinopoly	86.9	91.0	97.3	101.0	100.9	98.0	97.0	95.9	95.1	90.8	86.6	84.1	93.8
Madras	84.6	86.5	89.5	92.9	97.4	98.1	95.2	93.6	93.7	88.8	84.6	82.7	90.6
Masulipatam	83.3	86.9	91.6	94.8	98.8	97.7	92.2	91.4	91.5	89.1	84.6	82.3	90.4
Bellary	87.5	94.1	100.5	104.0	102.4	94.9	91.0	91.1	91.0	89.7	86.5	85.2	93.2
Vizagapatam	79.1	82.8	86.3	88.8	90.2	90.1	87.6	87.6	87.6	85.9	81.4	77.9	85.4
Quetta	51.6	52.2	64.5	73.2	82.8	90.6	92.5	90.7	85.3	74.9	63.7	57.3	73.3
Murree	47.8	47.6	59.0	68.0	75.9	82.2	77.4	74.3	74.1	69.5	61.0	54.0	65.9
Simla	51.2	52.4	62.3	71.4	76.6	78.2	72.1	70.4	71.3	67.8	60.5	56.4	65.9
Chakrata	50.1	50.9	62.2	70.2	73.6	74.9	69.8	69.4	69.1	66.2	59.1	54.8	64.2
Ranikhet	54.0	55.9	65.4	74.1	76.6	78.2	73.6	72.6	72.5	69.4	62.2	58.0	67.7
Darjeeling	44.3	45.8	56.8	61.4	62.6	64.7	66.3	66.2	64.9	60.8	54.4	48.9	58.1
Mount Abu	67.1	69.4	79.1	85.5	89.1	83.4	74.7	72.0	75.6	79.3	73.5	69.0	76.5
Pachmarhi	70.6	75.1	84.9	92.2	94.5	85.2	75.3	74.7	77.1	77.4	71.8	68.8	79.0
Wellington	66.1	70.4	73.7	76.0	75.5	71.7	70.8	70.8	71.0	68.6	66.6	65.3	70.5

TABLE II.—Giving average monthly minimum temperatures of 94 stations in India, etc.

STATION.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
Moulmein	65.5	67.2	72.1	75.6	75.5	74.4	73.8	73.8	74.0	74.3	71.1	66.3	72.0
Toungoo	57.5	60.9	67.1	73.1	76.2	75.1	74.9	74.9	75.4	74.6	70.3	63.1	70.3
Rangoon	63.8	64.9	70.9	75.8	77.1	76.4	75.7	75.8	76.0	75.8	73.1	67.9	72.8
Bassein	60.8	63.7	70.1	75.1	76.8	76.2	75.7	75.7	75.6	75.1	71.8	65.5	71.8
Diamond Island	70.6	72.1	75.2	78.5	78.7	75.9	75.2	75.4	75.7	76.5	75.0	72.4	75.1
Akyab	59.4	60.8	68.9	75.6	77.4	77.7	77.3	77.1	77.9	76.7	71.8	64.5	72.1
Thayetmyo	53.6	55.6	66.0	75.4	77.3	76.4	76.2	76.1	75.9	74.3	68.2	59.5	69.5
Silchar	52.1	54.9	63.5	68.9	72.1	76.1	77.2	76.6	76.3	72.5	63.7	55.2	67.4
Sibsagar	49.6	53.0	60.1	66.3	71.4	76.6	78.0	77.7	76.5	70.9	59.7	50.6	65.9
Dhubri	53.5	54.3	64.7	70.7	72.8	76.6	78.8	78.2	77.0	73.2	63.5	56.0	68.3
Chittagong	55.4	58.4	67.7	73.5	75.0	76.4	76.4	76.1	76.1	73.8	66.2	58.2	69.4
Dacca	54.9	57.7	68.6	74.4	75.6	78.3	79.3	78.9	78.7	75.3	66.0	57.3	70.4
Jessore	53.0	56.5	68.5	75.0	76.3	78.8	79.1	78.7	78.4	74.9	64.0	55.1	69.9
Calcutta	55.4	59.9	69.9	75.6	76.8	78.8	78.4	78.1	77.9	74.5	64.7	56.2	70.5
Saugor Island	59.3	65.3	75.1	79.7	80.3	82.0	80.4	79.6	79.4	76.0	67.0	58.9	73.6
Burdwan	54.6	58.1	68.6	75.4	77.0	79.4	79.4	78.9	78.7	74.7	64.0	55.6	70.4
Berhampore	53.2	55.8	66.1	74.3	75.9	78.5	78.7	78.5	78.4	74.5	63.9	55.1	69.4
False Point	59.1	64.4	72.3	77.6	79.1	80.2	78.4	78.2	78.1	74.8	65.8	57.1	72.1
Cuttack	60.0	65.1	72.9	77.9	79.4	80.2	78.5	78.2	77.9	74.5	66.2	58.0	72.4
Hazaribagh	50.3	53.9	63.9	72.1	74.0	76.1	73.6	72.9	72.1	66.9	57.0	50.1	65.2
Gaya	51.3	55.8	66.3	74.0	77.6	79.2	78.4	78.5	77.9	70.9	59.0	50.9	68.3

TABLE II.—Giving average monthly minimum temperatures of 94 stations in India, etc.—continued.

STATION.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
Patna	49.6	52.3	63.6	73.2	77.2	80.2	79.8	79.5	79.2	72.6	59.8	50.9	68.2
Purneah	47.9	50.7	60.5	69.4	73.4	76.9	78.6	78.0	77.3	71.3	58.8	49.9	66.1
Durbhanga	52.0	53.5	63.5	71.8	75.8	78.9	79.8	79.2	78.9	73.7	62.2	54.2	68.6
Benares	47.9	51.4	62.5	72.2	78.6	82.5	79.5	78.8	77.5	68.7	55.4	47.7	66.9
Allahabad	47.5	50.9	62.3	72.0	78.6	83.1	79.2	78.6	76.8	67.7	54.4	47.3	66.5
Gorakhpur	48.6	51.7	62.6	72.3	76.7	80.0	79.7	79.0	78.0	70.3	57.3	49.8	67.2
Lucknow	45.9	50.0	60.7	71.0	76.6	81.6	79.4	78.6	76.4	65.7	51.5	45.3	65.2
Bareilly	45.9	48.7	59.2	68.5	75.2	80.1	78.7	78.1	75.9	65.3	52.1	45.4	64.4
Roorkee	44.2	47.1	56.7	66.6	73.9	79.1	78.0	77.2	73.7	61.5	49.1	43.2	62.5
Meerut	44.4	47.4	58.0	67.9	74.9	81.1	79.7	78.6	74.8	62.9	49.4	43.7	63.6
Delhi	48.1	51.7	62.5	73.2	78.9	83.5	80.4	79.2	76.7	68.1	55.1	48.4	67.2
Lahore*	41.2	44.0	55.2	65.1	72.0	79.5	79.6	78.2	72.6	60.4	46.4	40.5	61.2
Ludhiana	43.5	46.1	57.4	66.4	73.4	80.0	79.9	79.1	75.0	64.0	50.0	43.0	63.2
Sialkot	42.9	45.1	55.4	65.9	73.5	80.1	79.1	77.5	73.2	62.0	48.2	41.6	62.0
Rawalpindi	37.9	40.5	50.5	59.4	67.5	74.7	76.8	75.3	68.7	56.3	41.9	35.9	57.1
Peshawar	39.1	41.4	51.9	60.2	69.3	76.4	79.2	78.1	70.0	57.5	43.8	37.7	58.7
Dera Ismail Khan	40.5	44.1	55.6	65.2	74.1	80.5	82.1	81.2	75.1	61.6	45.9	39.7	62.1
Mooltan	42.3	45.8	57.9	67.0	75.5	81.8	82.8	82.0	77.3	64.7	51.4	42.7	64.3
Sirsa	42.4	45.8	57.3	67.9	75.7	82.9	81.1	79.5	74.8	62.7	47.6	41.9	63.3
Jacobabad	42.8	47.5	59.4	68.3	76.7	83.3	83.9	81.3	76.0	63.4	49.2	43.2	64.6
Hyderabad	50.9	53.9	64.6	71.6	78.4	81.5	80.7	78.5	76.2	70.8	59.0	52.4	68.2
Kurrachee	54.4	57.5	66.1	72.2	78.4	82.0	80.5	78.4	76.9	71.6	60.9	55.7	69.6
Jeypore	48.4	49.9	61.0	69.0	76.2	80.0	76.8	74.9	72.4	64.8	52.9	48.1	64.5
Sambhar	46.2	47.9	59.4	70.2	78.0	81.6	77.6	75.7	73.8	65.1	52.0	45.8	64.4
Ajmere	44.5	48.0	58.9	69.9	77.3	79.5	76.4	74.3	72.5	63.1	49.0	43.9	63.1
Deesa	51.1	54.4	63.9	70.5	77.4	80.5	77.5	75.3	73.7	67.1	56.7	51.8	66.7
Rajkot	50.9	54.0	62.6	68.8	75.3	77.2	75.4	74.6	72.6	68.5	58.4	52.1	65.9
Nowgong	46.9	50.0	60.9	71.1	79.2	83.0	77.7	76.8	74.9	65.5	51.8	45.7	65.3
Sutna	47.2	50.9	61.0	70.9	78.0	81.2	76.7	75.8	74.5	65.7	52.8	46.1	65.1
Indore	50.4	51.5	60.8	68.7	75.4	74.7	72.3	71.3	70.2	64.2	54.0	48.8	63.5
Neemuch	48.6	51.3	61.6	70.2	76.3	77.2	73.7	72.2	70.4	64.9	54.2	48.9	64.1
Surat	56.3	58.1	65.8	71.5	77.6	79.4	77.3	76.3	75.4	70.7	62.5	56.7	69.0
Agra	48.3	51.6	62.9	71.4	78.6	84.8	80.2	78.7	76.4	68.3	54.9	48.0	67.2
Jhansi	50.3	53.9	65.4	75.5	81.9	83.8	78.2	76.6	75.0	68.5	56.3	50.2	68.0
Belgaum	57.4	59.4	64.2	67.2	67.8	67.8	66.9	66.2	65.2	65.1	61.6	58.0	63.9
Sholapur	57.6	61.6	68.9	74.8	75.9	72.6	71.2	70.4	70.3	68.0	62.6	56.9	67.6
Poona	55.4	57.3	64.6	69.7	71.9	72.6	70.6	69.5	68.8	66.7	60.1	53.9	65.1
Malegaon	52.0	54.9	63.8	70.5	74.6	74.7	72.8	71.4	69.9	65.5	56.9	50.0	64.8
Akola	53.2	56.5	65.9	73.8	80.6	77.3	73.9	73.3	72.4	66.2	57.0	49.8	66.7
Amraoti	57.3	60.7	68.4	75.1	78.9	76.0	73.0	72.5	71.6	67.5	60.5	54.9	68.0
Khandwa	51.8	54.9	65.0	73.9	80.2	78.0	74.7	73.7	72.7	60.3	55.9	48.6	66.3
Hoshangabad	52.5	54.9	64.2	72.9	79.6	78.9	74.9	73.8	73.2	67.2	56.5	50.4	66.6
Nagpur	55.3	59.3	67.8	75.7	80.8	77.8	74.6	74.6	73.6	68.4	59.6	53.0	68.4
Seoni	51.3	55.2	63.7	71.5	76.7	75.3	72.4	71.8	70.6	64.5	55.2	48.9	64.8
Jubbulpore	48.4	51.7	61.2	70.7	78.5	78.3	74.5	74.0	72.8	64.2	52.3	45.0	64.3
Saugor	51.2	54.1	64.7	72.3	77.5	76.9	73.5	72.6	71.0	65.4	56.1	50.9	65.5
Raipur	55.3	60.1	68.7	76.6	80.8	78.0	74.5	75.0	74.6	69.7	60.1	53.0	68.9
Secunderabad	57.8	62.5	69.6	74.9	77.9	73.9	71.0	70.7	70.4	67.7	62.2	56.3	67.9
Bombay	67.9	68.3	73.5	77.1	80.8	79.3	77.2	76.7	76.3	76.3	73.2	69.4	74.7
Ratnagiri	66.2	66.8	72.4	76.6	78.9	76.8	75.3	74.9	74.2	73.5	70.2	67.0	72.7
Karwar	66.0	66.9	73.2	77.7	79.0	75.4	74.5	74.0	73.4	73.1	69.6	66.6	72.5
Mangalore	69.3	71.1	75.8	78.8	78.4	74.9	74.0	73.8	73.8	74.2	72.9	70.7	74.0
Cochin	71.3	72.6	76.6	78.4	77.2	74.4	73.8	74.0	74.0	74.4	74.2	72.9	74.5
Madura	68.5	69.0	72.3	76.1	76.5	76.6	76.1	75.6	75.1	73.9	72.2	70.5	73.5
Salem	63.1	64.3	70.3	75.4	75.2	73.3	72.2	71.7	71.0	70.3	67.8	65.0	70.0
Coimbatore	64.2	64.8	69.8	73.9	73.7	71.6	70.7	70.6	70.7	70.7	69.3	66.4	69.7
Mercara	56.1	57.2	61.3	64.4	64.6	63.4	62.4	62.3	61.9	62.3	60.6	57.7	61.2
Bangalore	56.6	58.6	64.1	69.3	69.1	66.4	65.5	65.4	64.9	64.8	62.1	58.7	63.8
Negapatam	70.8	71.4	75.2	78.7	79.8	78.9	77.9	77.0	76.3	75.5	73.9	71.9	75.6
Trichinopoly	66.8	67.4	72.4	77.2	78.0	78.0	77.3	76.2	75.3	74.0	71.6	69.0	73.6
Madras	67.8	67.6	72.3	77.2	80.6	80.3	78.5	77.3	77.0	75.0	72.6	70.1	74.7
Masulipatam	66.0	67.6	72.4	77.1	81.2	80.2	78.0	77.6	77.4	75.7	71.5	66.4	74.3
Bellary	60.5	64.6	71.8	77.0	77.2	75.7	74.2	73.4	72.9	70.8	65.9	60.7	70.4
Vizagapatam	65.9	69.7	76.1	81.0	82.8	82.4	80.5	80.4	79.8	77.2	72.9	67.4	76.3
Quetta	29.2	31.4	40.0	46.1	52.1	59.2	65.6	62.2	50.8	39.6	30.5	28.5	44.6
Murree	35.5	34.2	44.4	51.8	59.1	64.8	62.9	61.3	59.1	53.4	45.2	39.8	51.0
Simla	36.4	36.1	44.9	52.2	57.3	60.5	60.6	59.8	57.2	51.1	43.7	40.0	50.0
Chakrata	35.7	35.6	44.6	51.7	55.7	59.9	60.0	59.3	57.2	50.9	43.2	39.4	49.4
Ranikhet	39.5	40.7	49.2	57.0	59.3	63.4	62.7	62.0	60.0	54.2	46.5	42.3	53.1
Darjeeling	34.6	33.8	43.3	46.9	50.4	55.2	57.3	56.8	55.2	49.0	41.4	36.8	46.7
Mount Abu	50.9	53.3	62.0	68.0	71.2	67.9	65.6	64.5	65.0	64.3	56.9	52.3	61.8
Pachmarhi	47.2	50.6	60.5	69.2	74.6	71.5	67.7	66.9	66.3	60.1	51.2	44.8	60.9
Wellington	45.6	46.5	52.9	56.1	58.6	58.4	58.2	57.3	55.8	55.2	52.9	49.5	53.9

* For remarks, vide note on page 437.

TABLE III—Giving average monthly diurnal range of temperature of 94 stations in India, etc.

STATION.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
Moulmein	22.7	24.0	21.7	18.7	14.7	9.6	8.8	9.3	10.5	13.8	17.3	21.0	16.0
Toungoo	27.9	29.8	30.7	27.1	20.0	13.0	11.4	11.3	13.1	15.2	16.8	21.2	19.8
Rangoon	24.6	27.3	25.6	22.1	15.1	9.5	9.1	8.9	9.5	11.6	14.0	19.4	16.4
Bassein	24.3	25.6	24.0	20.6	15.2	9.9	9.0	8.6	9.7	11.8	14.2	19.0	16.0
Diamond Island	13.2	11.9	10.2	10.1	10.2	9.5	9.3	9.0	9.2	9.9	10.8	12.2	10.5
Akyab	21.9	23.7	19.5	16.2	13.0	8.2	7.2	7.1	8.5	11.4	13.9	17.6	14.0
Thayetmyo	31.6	36.7	33.8	27.6	22.2	14.4	12.6	12.7	13.6	15.9	19.2	25.0	22.2
Silchar	24.7	24.8	21.6	18.7	15.8	12.6	13.0	12.6	13.3	16.4	20.9	24.2	18.2
Sibsagar	20.3	19.5	19.1	16.4	15.1	13.4	13.0	12.3	12.5	14.4	18.8	21.2	16.3
Dhubri	19.9	22.8	21.9	17.6	13.3	9.3	8.9	8.6	8.7	11.9	16.5	18.7	14.8
Chittagong	22.1	22.9	18.3	14.9	12.9	9.7	9.1	8.9	10.4	12.7	16.6	19.6	14.9
Dacca	23.2	24.8	21.6	18.8	15.3	10.7	9.2	8.7	9.8	12.8	17.8	21.0	16.2
Jessore	25.1	26.9	24.4	22.4	17.9	12.9	10.4	9.9	10.7	13.9	19.6	22.8	18.0
Calcutta	21.3	21.9	20.8	20.0	16.6	12.6	9.7	9.0	9.5	12.2	16.6	19.8	15.9
Saugor Island	17.2	15.8	12.4	11.1	11.2	8.8	7.3	7.5	8.4	10.9	14.6	16.8	11.8
Burdwan	23.6	25.3	25.3	25.2	19.9	15.0	10.9	10.2	10.8	14.0	18.7	22.0	18.4
Berhampore	23.5	26.4	27.1	26.0	19.6	14.1	10.8	10.0	10.4	13.3	18.0	21.3	18.4
False Point	19.6	18.3	15.6	13.4	12.2	10.8	9.2	8.8	9.8	12.6	16.2	20.0	13.9
Cuttack	24.6	25.1	24.3	24.4	21.6	15.9	11.3	11.2	12.0	15.5	19.0	24.0	19.1
Hazaribagh	22.3	23.9	25.1	26.1	24.0	16.6	10.9	10.7	12.3	16.2	19.7	21.3	19.1
Gaya	24.3	25.9	27.9	29.6	26.5	21.8	13.1	11.6	12.9	18.5	23.3	24.8	21.6
Patna	23.0	25.9	27.8	27.8	22.3	16.8	10.8	9.9	11.2	15.8	21.6	23.1	19.6
Purneah	26.8	28.4	30.1	28.0	21.2	15.8	11.9	11.3	11.9	16.5	23.2	26.2	20.9
Durbhanga	20.0	22.7	24.3	24.5	19.6	13.5	9.3	9.3	9.3	12.5	18.4	19.7	17.0
Benares	26.8	29.4	31.3	31.4	25.9	18.9	12.0	11.1	13.7	21.6	26.8	27.5	23.0
Allahabad	26.1	28.9	31.4	32.0	27.6	19.7	12.0	11.2	14.0	22.2	27.5	27.4	23.4
Gorakhpur	24.8	26.8	28.7	28.7	23.9	18.5	11.6	11.4	12.7	18.6	24.4	24.7	21.2
Lucknow	27.9	28.7	30.9	31.2	27.5	20.5	12.6	12.1	15.5	25.5	31.4	30.3	24.5
Bareilly	24.2	26.5	28.8	30.9	27.2	21.1	13.1	12.2	14.6	24.3	28.9	27.2	23.3
Roorkee	25.2	26.4	29.4	31.3	28.1	22.6	13.8	13.8	17.6	28.0	31.3	29.2	24.8
Meerut	25.7	27.4	29.4	30.4	26.9	20.5	13.1	12.3	16.9	27.6	31.7	29.4	24.2
Delhi	22.9	23.9	26.4	27.2	25.5	21.1	13.6	12.7	16.2	24.2	28.6	26.4	22.3
Lahore	26.4	27.1	29.1	31.2	31.2	26.6	19.2	18.3	24.4	33.0	35.2	31.5	27.8
Ludhiana	24.1	25.8	28.3	31.0	30.7	26.2	18.3	16.8	20.0	28.3	30.4	28.4	25.6
Sialkot	23.8	24.6	26.7	28.9	28.9	25.6	18.6	16.9	22.3	30.2	32.4	28.7	25.7
Rawalpindi	25.4	24.2	26.7	28.6	30.0	28.5	21.0	18.5	24.9	31.9	34.8	31.8	27.2
Peshawar	24.9	24.5	25.0	26.0	28.3	29.2	23.6	21.3	25.6	31.0	33.2	30.1	26.9
Dera Ismail Khan	28.7	27.8	28.6	28.6	29.1	27.1	21.4	20.5	25.5	32.4	36.0	33.4	28.3
Mooltan	27.4	27.4	28.3	30.1	28.7	24.3	20.3	18.2	22.1	30.1	33.1	31.0	26.7
Sirsa	28.4	29.8	28.1	32.3	30.4	23.3	18.8	18.0	23.4	33.5	36.9	32.9	28.0
Jacobabad	30.5	29.7	31.6	33.3	33.5	28.3	23.4	22.0	26.6	34.3	36.6	33.6	30.3
Hyderabad	25.6	26.1	28.9	29.9	28.5	21.5	18.1	16.5	20.8	26.8	28.2	26.5	24.8
Kurrachee	22.1	21.6	19.8	16.9	14.4	11.5	9.6	9.2	11.2	19.6	26.1	24.5	17.2
Jeyapore	25.1	28.1	29.3	31.1	29.4	22.9	14.6	14.9	20.4	28.4	31.6	29.4	25.5
Sambhar	26.0	28.6	29.0	28.7	26.6	20.2	13.9	13.3	17.8	26.5	30.4	29.3	24.2
Ajmere	29.4	29.5	30.7	28.2	25.9	20.8	14.5	13.0	17.9	28.4	34.0	32.3	25.4
Deesa	31.1	31.0	32.0	31.8	28.6	20.9	13.7	12.8	18.5	28.9	33.5	32.9	26.3
Rajkot	33.2	33.6	34.2	33.1	30.3	22.8	14.7	14.1	18.3	26.9	31.6	33.4	27.2
Nowgong	28.4	30.4	33.0	32.7	28.3	20.0	12.2	11.7	15.9	25.4	30.3	29.6	24.8
Sutna	27.1	28.4	31.0	30.5	26.6	17.8	9.9	9.8	12.8	21.9	27.3	28.5	22.6
Indore	28.2	31.0	32.0	31.3	27.0	19.4	11.5	11.4	14.6	22.9	27.6	29.4	23.9
Neemuch	28.7	29.2	30.7	30.0	27.8	21.2	12.9	12.2	16.8	25.0	29.1	28.9	24.4
Surat	29.7	31.3	30.3	29.0	20.3	14.4	9.8	10.4	12.7	21.6	27.4	29.8	22.2
Agra	25.1	26.9	29.1	31.1	25.9	20.2	12.6	11.7	15.9	25.0	29.1	28.0	23.4
Jhansi	25.2	26.4	27.9	28.0	25.6	19.6	12.2	11.7	15.9	24.1	27.5	27.7	22.6
Belgaum	25.5	29.2	29.9	29.5	25.4	12.9	8.7	10.0	13.4	17.4	20.1	23.1	20.4
Sholapur	29.4	32.1	31.4	30.3	28.3	21.7	17.4	18.1	17.8	21.2	24.3	27.7	24.9
Poona	29.3	33.3	32.5	31.0	26.2	15.7	10.9	12.2	14.8	20.5	24.9	29.0	23.4
Malegaon	32.9	34.7	33.8	32.2	28.7	19.8	13.7	14.8	17.1	24.0	28.7	32.8	26.1
Akola	30.9	33.7	33.2	31.8	26.5	20.2	14.0	13.9	15.9	23.9	28.8	31.9	25.4
Amraoti	26.7	29.1	30.6	30.6	28.3	20.5	13.7	14.2	16.1	22.0	24.7	26.4	23.6
Khandwa	31.3	33.7	32.9	30.3	26.0	19.3	12.3	12.3	14.7	23.6	29.2	32.7	24.9
Hoshangabad	27.6	30.3	32.3	31.9	28.1	19.1	11.0	11.5	14.9	22.1	26.9	28.3	23.7
Nagpur	27.3	29.9	31.2	30.0	27.8	19.7	12.4	12.9	15.5	21.3	24.5	27.1	23.3
Seoni	27.7	28.8	30.3	29.9	26.5	17.1	11.2	11.6	14.8	21.7	25.4	28.1	22.7
Jubbulpore	28.6	30.2	32.3	31.0	26.3	18.5	11.1	10.8	14.3	22.9	28.4	30.8	23.8
Saugor	25.2	26.4	27.8	29.1	27.1	21.8	11.2	10.9	15.1	21.5	24.5	24.5	22.1
Raipur	25.4	26.7	28.2	27.6	25.6	18.6	11.7	11.3	13.0	18.4	21.9	24.9	21.1
Secunderabad	26.0	28.4	28.3	27.2	24.7	19.3	15.0	15.5	16.1	19.3	20.7	25.1	22.1
Bombay	14.2	14.0	12.2	11.0	9.2	8.1	6.9	7.1	8.0	11.0	13.5	14.7	10.9
Ratnagiri	21.1	19.4	15.3	13.2	12.0	9.4	8.4	8.5	9.7	14.8	20.2	22.2	14.6
Karwar	20.3	19.2	14.5	12.0	10.7	9.6	8.6	8.1	9.2	11.9	17.2	20.4	13.4
Mangalore	18.5	16.6	13.0	11.9	11.5	9.5	8.7	8.6	9.4	10.9	14.2	17.7	12.5
Cochin	17.2	16.8	13.9	12.8	12.1	10.0	9.5	9.0	10.1	11.4	12.5	14.9	12.5

TABLE III.—*Giving average monthly diurnal range of temperature of 94 stations in India, etc.—continued.*

STATION.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
Madura	19'4	22'7	24'7	24'4	23'8	22'4	21'7	21'1	20'7	18'0	15'2	15'4	20'8
Salem	24'8	28'9	28'0	25'6	23'6	20'8	20'5	19'7	20'1	19'0	18'8	20'6	22'5
Coimbatore	22'1	27'1	26'5	24'3	21'2	18'2	17'2	17'7	18'7	17'4	16'4	18'0	20'4
Mercara	20'0	24'0	23'1	20'2	16'6	8'6	6'4	8'4	10'6	13'2	14'3	16'7	15'2
Bangalore	22'5	26'5	26'2	24'0	22'0	18'1	16'5	16'5	17'0	16'2	16'1	18'4	20'0
Negapatam	11'0	12'8	13'4	13'7	16'1	17'8	17'4	16'0	15'8	12'3	9'7	8'9	13'8
Trichinopoly	20'1	24'5	24'9	23'8	22'9	20'0	19'7	19'7	19'8	16'8	15'0	15'1	20'2
Madras	16'8	18'9	17'2	15'7	16'8	17'8	16'7	16'3	16'7	13'8	12'0	12'6	15'9
Masulipatam	17'3	19'3	19'2	17'7	17'6	17'5	14'2	13'8	14'1	13'4	13'1	15'9	16'1
Bellary	27'0	29'5	28'7	27'0	25'2	19'2	16'8	17'7	18'1	18'9	20'6	24'5	22'8
Vizagapatam	13'2	13'1	10'2	7'8	7'4	7'7	7'1	7'2	7'8	8'7	8'5	10'5	9'1
Quetta	22'4	20'8	24'5	27'1	30'7	31'4	26'9	28'5	34'5	35'3	33'2	28'8	28'7
Murree	12'3	13'4	14'6	16'2	16'8	17'4	14'5	13'0	15'0	16'1	15'8	14'2	14'9
Simla	14'8	16'3	17'4	19'2	19'3	17'7	11'5	10'6	14'1	16'7	16'8	16'4	15'9
Chakrata	14'4	15'3	17'6	18'5	17'9	15'0	9'8	10'1	11'9	15'3	15'9	15'4	14'8
Ranikhet	14'5	15'2	16'2	17'1	17'3	14'8	10'9	10'6	12'5	15'2	15'7	15'7	14'6
Darjeeling	9'7	12'0	13'5	14'5	12'2	9'5	9'0	9'4	9'7	11'8	13'0	12'1	11'4
Mount Abu	16'2	16'1	17'1	17'5	17'9	15'5	9'1	7'5	10'6	15'0	16'6	16'7	14'7
Pachmarhi	23'4	24'5	24'4	23'0	19'9	13'7	7'6	7'8	10'8	17'3	20'6	24'0	18'1
Wellington	20'5	23'9	20'8	19'9	16'9	13'3	12'6	13'5	15'2	13'4	13'7	15'8	16'6

In Tables I and II of each of the monthly reviews for 1891 are given the variations of the mean temperature conditions of each station and of the eleven meteorological provinces from the normal temperature conditions of the month. The following tables give summaries of the temperature variation data for each month of the year 1891, and for the year. In the first table (Table IV) the same division has been adopted as that employed in the Annual Reports from 1881 to 1890, and thus enables an exact comparison to be made of the temperature data of the year 1891 with

those of previous years as given in the Annual Reports. In the second set of tables, Tables V (a), V (b), V (c), the variation data are given for the eleven divisions or meteorological provinces into which the empire is divided with the purpose chiefly of comparing meteorological and health statistics, and in the last table (Table VI) the data are given for 49 smaller divisions or districts into which India is sub-divided, with a view to the comparison of meteorological and crop statistics.

TABLE IV.—*Geographical Summary of the Temperature data of Table II in the 1891 monthly reviews.*

DISTRICT.	Number of stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
North-West Himalaya	7-8	+0'8	-4'0	-6'7	-1'3	-1'0	+0'5	+1'3	-0'6	-0'3	-2'4	+1'7	+2'3	-0'8
Sikkim Himalaya and Nepal.	2-3	+2'4	-0'2	-3'4	+1'0	-0'3	+0'3	+0'6	+0'5	+1'9	-1'6	+1'0	+1'2	+0'3
Punjab Plains	4	+0'1	-3'5	-5'7	-1'5	-1'4	+1'3	+3'4	+0'1	+2'6	+0'2	+3'3	+2'0	+0'1
Gangetic Plains	8	+0'3	-2'0	-4'8	-0'7	-0'7	+0'4	+2'8	-1'1	-0'3	-1'1	+0'9	+0'3	-0'5
Western Rajputana	3-4	-0'4	-2'2	-4'7	+0'8	0	+1'0	+2'2	+0'7	+2'1	+2'1	+3'3	+2'1	+0'6
Eastern Rajputana and Central India.	4	-0'3	-1'3	-4'5	+0'1	-0'6	+3'5	+3'6	+0'3	-0'6	+0'5	+0'7	+0'2	+0'1
Nerbudda Valley	3	-0'6	-2'2	-2'7	+0'5	+0'3	+4'7	+1'1	-1'3	-2'3	-0'9	-1'0	-2'1	-0'5
Chota Nagpur	1	+0'4	-1'2	-4'0	+1'1	+1'3	?	0	-0'2	-0'1	+0'8	+1'0	+0'5	?
Lower Bengal	5	+0'1	-1'6	-4'2	+0'1	-0'8	+1'2	-0'4	-0'4	-0'2	-0'1	+0'7	+1'1	-0'4
Assam and Cachar	3	+1'0	+0'1	-1'7	+0'3	-1'9	-0'7	+0'2	+0'5	+1'6	-0'9	0	+1'3	0
Orissa and Sambalpur	3	+0'3	-0'4	-2'1	-0'2	-0'7	+3'5	+0'1	-1'2	-0'9	-0'2	+0'4	+1'0	0
Central Provinces, South, and Berar.	7	-0'2	-1'6	-2'5	0	+0'8	+6'9	+0'3	-0'9	-1'9	-0'6	0	-0'4	0
Konkan	3	+0'2	+0'4	-0'7	-0'3	0	+2'6	+0'1	+0'5	0	+0'3	+0'1	+0'9	+0'3
Malabar Coast	1	-1'0	+1'0	-0'2	-0'3	+0'9	-0'5	+0'4	+0'6	+1'5	+0'5	+0'2	+1'3	+0'4
Deccan, Hyderabad and Mysore.	6	-0'4	+0'1	-0'8	+0'1	+0'7	+3'7	+0'7	+0'2	0	+0'7	+0'5	+1'3	+0'6
East Coast and Carnatic.	3-4	-0'3	+0'6	-0'6	-0'2	+1'5	+1'3	+1'2	+1'9	+1'8	+0'2	+1'7	+1'4	+0'9
Arakan and Pegu	3-4	+0'6	+0'2	+0'7	+0'2	-0'1	+0'5	0	+0'2	-0'6	-0'1	+0'8	+0'6	+0'3
Tenasserim	1	-1'4	-1'3	-1'3	-0'3	+0'8	-1'4	-1'7	-2'7	-3'3	-1'1	-1'5	-2'0	-1'4
Bay Islands	1	+0'9	+1'4	+1'5	+1'5	+2'3	-0'1	+1'2	-0'3	+0'2	+2'0	-0'2	-0'5	+0'8
Extra-Tropical	45-46	+0'3	-2'0	-4'5	-0'3	-0'7	+1'3	+1'6	-0'4	+0'2	-0'6	+1'2	+1'0	-0'2
Tropical	25-27	-0'1	-0'2	-0'9	0	+0'7	+3'2	+0'4	+0'1	-0'4	+0'1	+0'4	+0'5	+0'3
Whole of India	71-73	+0'2	-1'4	-3'1	-0'2	-0'2	+2'0	+1'2	-0'2	0	-0'4	+0'9	+0'8	0

TABLE V (a).—*Variation of the mean monthly maximum temperature from the normal in 1891 in the eleven meteorological provinces of India.*

METEOROLOGICAL PROVINCE.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
Burma Coast and Bay Islands .	+1.5	+1.1	+0.9	+1.4	+3.4	+0.6	-0.1	+0.4	-0.6	+1.1	-1.0	-0.7	+0.7
Burma Inland	+1.7	+0.6	+0.2	+0.9	+4.6	+1.6	-0.1	+0.3	-0.5	+1.1	+0.5	-1.3	+0.8
Assam	+1.5	+0.7	-2.9	+1.5	-2.6	-0.7	-0.4	+1.0	+1.8	-0.5	+0.9	+2.2	+0.2
Bengal and Orissa	+0.9	-1.5	-5.6	+0.8	-1.0	+1.4	-0.5	+0.3	+0.4	+0.6	+0.9	+2.1	-0.1
Gangetic Plain and Chota Nagpur.	-0.2	-2.7	-7.7	-1.1	-0.7	+0.3	+1.9	0	+0.2	-0.6	+1.4	+1.3	-0.7
Upper Sub-Himalayas	-3.1	-5.4	-8.7	-2.9	-2.4	+1.5	+5.4	-2.6	-1.6	-4.7	+0.1	+0.4	-2.0
Indus Valley and North-West Rajputana.	-3.9	-5.5	-7.0	-0.8	-2.1	+2.6	+3.8	+1.6	+2.4	-0.7	+3.1	+2.1	-0.4
East Rajputana, Central India and Guzerat.	-0.2	-1.8	-6.4	-0.3	-0.7	+4.2	+5.2	+0.7	-0.5	-0.9	+1.5	+1.6	+0.2
Deccan	+0.6	-2.3	-3.6	-0.4	+0.7	+7.8	+1.5	-1.2	-2.3	-0.3	+1.4	+1.3	+0.3
West Coast	+0.6	+1.4	-0.4	0	+0.5	+2.2	+0.4	+1.2	+0.8	+1.7	+1.5	+2.8	+1.1
South India	+1.2	-0.4	-0.5	0	+0.3	+2.3	+0.6	+1.9	+2.4	-0.3	+2.4	+2.2	+1.0

TABLE V (b).—*Variation of the mean monthly minimum temperature from the normal in 1891 in the eleven meteorological provinces of India.*

METEOROLOGICAL PROVINCE.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
Burma Coast und Bay Islands .	-0.2	+1.2	+1.0	+0.9	+1.6	-0.3	-0.3	-0.3	-0.5	-0.7	+0.2	+0.6	+0.3
Burma Inland	-2.5	-0.1	+0.5	-1.1	+0.7	-1.4	-2.1	-2.0	-2.8	-5.0	-2.3	-2.1	-1.7
Assam	-0.5	-0.3	-1.1	-0.6	-1.1	-0.6	+0.2	+0.4	+0.7	-2.4	-0.8	-0.7	-0.6
Bengal and Orissa	+0.4	+0.1	-1.2	-0.5	-0.2	+0.9	+0.2	+0.2	+0.1	-2.0	+0.7	+1.0	0
Gangetic plain and Chota Nagpur.	+0.4	-1.1	-2.9	-1.1	-0.6	-0.2	+0.6	-0.2	+0.4	-1.8	+0.9	0	-0.5
Upper Sub-Himalayas	+0.8	-1.6	-4.0	-2.6	-1.3	-1.4	+2.1	-1.2	+1.5	+0.3	+3.2	+0.1	-0.3
Indus Valley and North-West Rajputana.	+2.1	-1.0	-3.7	-0.4	-0.7	-0.9	+0.4	+0.3	+1.9	+1.6	+4.5	+0.9	+0.4
East Rajputana, Central India and Guzerat.	-0.3	-1.0	-2.7	+0.3	0	+1.8	+2.4	+0.3	+1.2	-0.1	+0.2	-0.5	+0.1
Deccan	-0.9	-1.0	-1.6	+0.3	+0.6	+3.3	+0.7	-0.2	0	-1.2	-1.8	-0.6	-0.2
West Coast	-1.3	+0.5	-0.8	-0.4	+0.3	+1.4	+0.4	+0.7	+0.1	-0.7	-1.1	+0.3	-0.1
South India	-0.5	+2.0	+0.6	0	+1.1	+1.1	+0.6	+0.7	+0.9	+0.1	-0.2	+2.0	+0.7

TABLE V (c).—*Variation of the mean monthly temperature from the normal in 1891 of the eleven meteorological provinces of India.*

METEOROLOGICAL PROVINCE.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
Burma Coast and Bay Islands .	+0.7	+1.2	+1.0	+1.2	+2.6	+0.2	-0.1	+0.1	-0.6	+0.2	-0.4	-0.1	+0.5
Burma Inland	-0.4	+0.3	+0.4	-0.1	+2.7	+0.1	-1.1	+0.9	-1.7	-2.0	-0.9	-1.7	-0.3
Assam	+0.5	+0.2	-2.0	+0.5	-1.2	-0.7	-0.1	+0.7	+1.2	-1.5	0	+0.7	-0.1
Bengal and Orissa	+0.7	-0.7	-3.4	+0.2	-0.6	+1.2	-0.2	+0.2	+0.3	-0.7	+0.8	+1.5	-0.1
Gangetic Plain and Chota Nagpur.	+0.1	-1.9	-5.3	-1.1	-0.7	0	+1.2	-0.1	+0.3	-1.2	+1.2	+0.7	-0.6
Upper Sub-Himalayas	-1.3	-3.6	-6.4	-2.8	-1.9	0	+3.8	-1.9	-0.1	-2.2	+1.7	+0.3	-1.2
Indus Valley and North-West Rajputana.	-0.9	-3.3	-5.4	-0.6	-1.4	+0.9	+2.1	+0.9	+2.2	+0.5	+3.8	+1.5	0
East Rajputana, Central India and Guzerat.	-0.2	-1.4	-4.6	0	-0.4	+3.0	+3.8	+0.5	+0.3	-0.5	+0.9	+0.5	+0.2
Deccan	-0.1	-1.7	-2.6	-0.1	+0.7	+5.6	+1.2	-0.7	-1.2	-0.8	-0.2	+0.4	0
West Coast	-0.3	+0.9	-0.6	-0.2	+0.4	+1.8	+0.4	+1.0	+0.5	+0.5	+0.2	+1.6	+0.5
South India	+0.4	+0.9	+0.1	0	+0.7	+1.7	+0.6	+1.3	+1.7	-0.1	+1.1	+2.2	+0.9

TABLE VI.—Variation of the mean monthly temperature from the normal in 1891 of 49 meteorological districts in India.

METEOROLOGICAL DISTRICT.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean variation of year.
Tenasserim	0	0	0	0	0	0	0	0	0	0	0	0	0
Lower Burma	-0.2	+0.3	+1.6	+2.6	+4.4	+0.7	+0.1	+0.4	-0.2	+0.4	+0.3	+0.8	+0.9
Arakan	+1.0	+1.0	+0.5	+0.2	+1.2	-1.2	-1.0	-1.1	-1.2	-0.1	-1.4	-1.3	-0.3
Central Burma	+1.4	+1.4	+1.3	+1.3	+2.1	+1.9	+1.0	+1.6	+0.3	+0.6	+0.2	+0.3	+1.1
Assam, Surma	-0.4	+0.3	+0.4	-0.1	+2.7	+0.1	-1.1	+0.9	-1.7	-2.0	-0.9	-1.7	-0.3
" Brahmaputra	+1.2	-0.2	-0.8	+1.2	-0.7	+0.3	+0.7	+1.3	+1.0	-0.9	+0.6	+2.0	+0.5
East Bengal	+0.2	+0.4	-2.7	+0.1	-2.4	-1.2	-0.6	+0.5	+1.4	-1.8	-0.3	+0.1	-0.5
Deltaic "	+1.4	-0.4	-1.6	+0.7	-0.8	+1.0	+0.1	+0.7	+0.8	-0.9	+1.0	+1.8	+0.3
Central "	-0.3	-1.8	-4.0	+0.3	+0.1	+1.4	-0.4	-0.1	-0.4	-0.3	+0.6	+1.2	-0.3
North "	+0.4	-0.7	-5.2	-0.5	-1.0	+0.7	-0.2	+0.5	+0.6	-0.5	+1.1	+1.4	-0.3
Orissa	+1.0	+0.4	-3.6	+0.2	-1.6	+1.1	-0.4	+1.1	+1.7	-2.1	+0.9	+1.8	0
Chota Nagpur	-0.3	-0.9	-2.6	0	-0.2	+1.8	-0.2	-0.8	-0.9	-0.3	+0.4	+1.6	-0.2
Bihar, South	+0.6	-1.1	-4.8	-0.1	+2.0	?	+0.1	-0.1	-0.2	-0.2	+1.5	+1.0	0
" North	-0.6	-1.8	-5.1	-0.8	+0.1	+1.0	+0.3	+0.3	+0.8	-0.6	+2.1	+0.8	-0.3
N.-W. Provinces (Eastern Dis-	+0.3	-1.9	-4.8	-0.6	-1.8	-0.5	-0.6	+0.8	+1.1	-1.9	+0.2	+0.7	-0.8
tricts).	-0.8	-2.4	-5.8	-2.0	-1.0	+1.0	+4.1	-0.6	0	-1.4	+1.2	+0.3	-0.6
N.-W. Provinces (East submon-	-0.2	-2.3	-5.7	-1.6	-1.9	-2.9	+0.3	-0.7	+0.3	-1.9	+0.7	+0.7	-1.3
tane).													
Oudh, South	+0.4	-1.8	-5.7	-1.6	-0.8	+0.1	+4.2	-1.0	-0.6	-2.0	+1.2	+0.5	-0.6
N.-W. Provinces (submontane). .	-0.3	-2.6	-5.3	-1.7	-0.9	+0.2	+3.9	-2.4	-1.0	-1.9	+1.4	+0.5	-0.8
Punjab, Central	-1.2	-3.7	-7.5	-3.5	-2.9	-0.1	+4.1	-1.6	+0.1	-2.4	+1.0	-0.9	-1.6
" Submontane	-1.7	-3.6	-7.2	-2.6	-1.0	+0.3	+4.5	-2.2	-0.1	-3.1	+1.7	+0.1	-1.2
" North	-2.4	-4.9	-6.6	-3.7	-2.8	-0.2	+3.0	-1.3	+1.3	-2.1	+2.7	+1.2	-1.3
" West	-0.8	-4.0	-6.1	-1.8	-2.1	+1.5	+2.7	+1.1	+2.5	+0.1	+3.7	+1.8	-0.1
Sind and Cutch	-1.1	-2.3	-4.4	+1.0	-0.5	0	+1.3	+0.8	+1.9	+1.1	+4.0	+1.2	+0.3
Rajputana, East	-0.6	-1.6	-4.9	+0.1	-0.2	+3.4	+4.9	+2.4	+2.4	+1.1	+2.3	+2.0	+0.9
Kathiawar	+0.3	-1.3	-4.5	+0.2	-0.7	+1.5	+2.3	+0.6	+1.4	+0.2	+0.7	+1.2	+0.2
Central India	-0.5	-1.8	-4.5	-0.2	-0.6	+3.1	+3.2	-0.9	-0.9	-1.2	-0.4	-0.9	-0.5
Guzerat	+0.5	-0.1	-1.9	+0.1	+1.4	+1.8	-0.1	0	-0.5	-0.8	-0.6	+1.2	+0.1
N.-W. Provinces, West	+0.3	-1.2	-5.6	-0.2	-0.9	+3.2	+5.8	-0.5	-1.5	-2.5	+1.2	-0.3	-0.2
Bombay, Deccan	-0.3	-0.1	-1.7	+0.3	+1.3	+4.4	+1.2	+0.4	-0.1	+0.2	-0.2	+1.9	+0.6
Khandesh	-1.0	-1.6	-3.6	+0.4	+0.6	+4.1	+0.6	-0.5	+0.5	-0.9	+1.4	-0.3	0
Berar	+0.7	-1.5	-2.3	+0.3	+1.4	+6.3	+0.7	-1.1	-1.6	-1.1	+0.1	+0.5	+0.2
Central Provinces, West	-0.5	-2.2	-2.9	+0.1	+0.4	+6.4	+1.5	-1.5	-2.1	-1.6	-0.7	-0.6	-0.3
" " Central	-0.5	3.5	-3.7	-0.9	+0.2	+5.0	+1.6	-1.2	-1.5	-1.2	-0.3	-0.7	-0.6
" " East	+0.5	-1.8	-3.7	-0.7	-0.9	+7.7	+0.1	+1.4	-2.1	-1.1	+0.9	+0.6	+0.1
Hyderabad, South	+1.2	+0.4	-0.3	+0.5	+1.4	+6.4	+1.4	+1.6	-0.2	+1.3	+1.3	+2.5	+1.5
Konkan	-0.1	+0.6	-1.1	-0.5	-0.2	+2.7	+0.2	+0.7	0	+0.4	+0.2	+1.4	+0.4
Malabar	-0.7	+1.5	+0.1	+0.2	+1.3	+0.5	+0.8	+1.4	+1.2	+0.7	+0.2	+1.9	+0.8
Madras, South	+0.4	+0.6	-0.7	-2.2	+0.6	-0.5	-0.4	+1.3	+2.9	-2.4	+0.1	+1.3	+0.1
" South Central	-0.5	+0.4	+0.5	-0.2	+1.9	+0.2	+1.1	+2.5	+2.6	-0.1	+1.2	+2.2	+1.0
Coorg	+0.4	+1.2	+1.1	+0.8	+1.0	+1.9	+0.4	-0.5	-0.2	+0.9	+0.1	+1.6	+0.7
Mysore	+0.6	+1.2	+0.4	+0.1	+2.6	+1.4	-0.3	+0.9	+2.3	+1.1	+1.5	+2.7	+1.2
Madras, East Coast South	+0.8	+1.1	-0.6	0	+0.2	+2.1	+1.9	+2.4	+2.6	-0.5	+1.4	+1.6	+1.1
" " Central	+0.1	+1.3	+0.4	+0.5	-0.6	+5.2	+0.3	+1.1	+1.3	0	+1.4	+3.0	+1.2
" Central	-0.7	-0.1	-0.5	-0.3	+1.1	+2.3	+0.2	+0.6	+1.2	+1.4	+0.9	+2.5	+0.7
" East Coast North	+1.0	+1.1	+0.7	+1.0	-0.2	+1.8	-0.3	-0.1	-0.3	-0.5	+1.5	+2.9	+0.7
Baluchistan	-1.2	-3.4	-6.3	-1.2	-1.9	-5.1	-2.7	+0.3	+0.4	+0.2	+5.7	+2.6	-1.1
Hill Stations Northern India	+0.5	-3.7	-7.3	-0.9	-1.9	+1.0	+2.2	-1.2	-0.3	-3.0	+0.4	+1.0	-1.1
" " Central India	-0.4	-3.0	-5.3	-0.2	-0.2	+4.2	+1.8	-0.4	-1.3	-0.7	+0.4	+0.5	-0.4
" " South India	-0.2	+0.3	-1.2	-1.3	-0.5	+0.4	-0.3	+0.3	+0.9	+0.2	-1.0	+0.7	-0.1

In the following discussion of the meteorology of India in 1891 the year is divided into four seasons according to the following arrangement:—

1st.—The cold weather, including the months of January and February.

2nd.—The hot weather, including the months of March, April and May.

3rd.—The period of the south-west monsoon rains

proper, including the months of June, July, August and September.

4th.—The period of the retreating south-west monsoon rains, including the months of October, November and December.

It is apparently not possible to suggest a division of the year for meteorological purposes which will be satisfactory for the whole of India. That suggested above is, on the

whole, the most convenient and the least open to objection, and has hence been adopted.

The temperature conditions of the year were very marked and exhibited larger variations from the normal than have been observed for many years.

1.—Cold weather period.—During the months of January, February and March, a larger number of cold weather storms appeared in Northern India than have occurred for many years. The chief feature of these storms was the very heavy snowfall in the Western Himalayan mountain area. Each of these storms was preceded by a warm wave and followed by a cool wave, the change of the mean daily temperature accompanying the passage of the storms occasionally exceeding 20° to 25° . The temperature changes due to the storms have been fully stated in the temperature sections of the monthly review and need not be repeated. As the storms followed each other at short intervals, the warm wave preceding a second storm on more than one occasion appeared in Upper India, whilst the two waves (warm and cool) of the preceding storm were advancing across Northern India.

One important effect of the stormy weather in Northern India was hence to give very large and rapid changes of temperature due to the passage across Northern India of the warm and cool temperature waves accompanying the numerous storms of the period.

A second effect due in part to the frequent storms and rainfall in the plains of Northern India and in part to the increasing snow accumulation during the period in the mountain areas to the north and north-west of India (Upper India chiefly), was the deficiency in the monthly mean temperature in Northern India, the deficiency increasing in amount from January to March.

The following statement summarises and gives data illustrating the chief features of this reduction of temperature:—

1st.—The reduction of temperature was greatest in the maximum or day temperature. The following gives data:—

PROVINCE.	VARIATION FROM NORMAL OF MEAN MAXIMUM TEMPERATURE IN		
	January.	February.	March.
Punjab	— $4^{\circ}0$	— $6^{\circ}0$	— $8^{\circ}5$
North-Western Provinces	— $2^{\circ}0$	— $3^{\circ}0$	— $7^{\circ}0$
Rajputana	— $2^{\circ}0$	— $3^{\circ}5$	— $1^{\circ}5$
Central India	— $1^{\circ}0$	— $2^{\circ}0$	— $5^{\circ}0$
Bihar and Chota Nagpur	— $1^{\circ}0$	— $2^{\circ}0$	— $6^{\circ}0$
Bengal	0	— $1^{\circ}0$	— $5^{\circ}0$
Assam	+ $1^{\circ}5$	0	— $4^{\circ}0$

The data show that the effect was greatest in Upper India and diminished in amount eastwards and southwards, and that it increased steadily from January to March, when the mean day temperature was abnormally low. The

temperature conditions of March were in fact such as are usually experienced in January or February.

2nd.—The minimum or night temperature was above the normal in Northern India in January but fell below it in February, and was considerably in defect in March. The following table giving data shows that as in the previous case the cooling effect due to the abnormal conditions was greatest in Upper India:—

PROVINCE.	VARIATION FROM NORMAL OF MINIMUM TEMPERATURE IN		
	January.	February.	March.
Punjab	+ $1^{\circ}4$	— $1^{\circ}3$	— $4^{\circ}3$
North-Western Provinces	+ $0^{\circ}8$	— $1^{\circ}4$	— $3^{\circ}4$
Rajputana	— $0^{\circ}4$	— $1^{\circ}1$	— $3^{\circ}1$
Central India	— $1^{\circ}1$	— $1^{\circ}4$	— $2^{\circ}5$
Bihar and Chota Nagpur	+ $0^{\circ}1$	— $0^{\circ}8$	— $2^{\circ}6$
Bengal	+ $0^{\circ}5$	+ $0^{\circ}1$	— $1^{\circ}3$
Assam	— $0^{\circ}5$	— $0^{\circ}3$	— $1^{\circ}1$

3rd.—The mean monthly temperature of the period was in defect in Northern India during the whole period, the deficiency increasing in amount from January to March. The following table gives data in illustration:—

PROVINCE.	VARIATION FROM NORMAL OF MEAN MONTHLY TEMPERATURE IN		
	January.	February.	March.
Punjab	— $1^{\circ}3$	— $2^{\circ}6$	— $6^{\circ}6$
North-Western Provinces	— $0^{\circ}2$	— $2^{\circ}1$	— $5^{\circ}6$
Rajputana	— $1^{\circ}0$	— $1^{\circ}9$	— $5^{\circ}3$
Central India	— $0^{\circ}5$	— $1^{\circ}8$	— $4^{\circ}5$
Bihar and Chota Nagpur	0	— $1^{\circ}7$	— $4^{\circ}9$
Bengal	+ $0^{\circ}6$	— $0^{\circ}7$	— $3^{\circ}6$
Assam	+ $0^{\circ}5$	+ $0^{\circ}2$	— $2^{\circ}0$

4th.—The cooling or depression was absolutely greatest in the North Punjab. The following table gives the variations of the monthly mean temperature at stations in that area:—

STATION.	VARIATION FROM NORMAL OF MEAN MONTHLY TEMPERATURE IN		
	January.	February.	March.
Peshawar	— $1^{\circ}3$	— $5^{\circ}2$	— $6^{\circ}7$
Rawalpindi	— $1^{\circ}2$	— $5^{\circ}0$	— $6^{\circ}4$
Sialkot	— $3^{\circ}5$	— $4^{\circ}7$	— $6^{\circ}8$
Lahore	— $1^{\circ}6$	— $4^{\circ}2$	— $8^{\circ}4$
Dera Ismail Khan.	— $0^{\circ}9$	— $4^{\circ}6$	— $7^{\circ}0$
Ludhiana	— $1^{\circ}7$	— $3^{\circ}6$	— $7^{\circ}2$

5th.—The cooling effect due to the special conditions was even greater at the hill stations than in the adjacent plains. The following table giving data for the hill stations shows that the reduction of temperature was nearly as largely

exhibited in the minimum or night as in the day temperature :—

STATION.	Variation from normal of mean.	January.	February.	March.
LRH . . .	Daily . . .	+0°0	—4°3	—4°5
KAILANG . . .	Ditto . . .	—1°4	—1°1	—5°8
MURREE . . .	Maximum . . .	—3°1	—7°1	—10°2
	Minimum . . .	—1°5	—6°1	—8°9
QUETTA . . .	Daily . . .	—2°3	—6°6	—9°1
	Maximum . . .	—3°4	—6°6	—7°7
SIMLA . . .	Minimum . . .	+1°0	—0°2	—4°8
	Daily . . .	—1°2	—3°4	—6°3
CHAKRATA . . .	Maximum . . .	—0°9	—7°7	—10°2
	Minimum . . .	+1°5	—3°6	—6°9
RANIKHET . . .	Daily . . .	+0°3	—5°7	—8°6
	Maximum . . .	+2°5	—2°1	—5°8
DARJEELING . . .	Minimum . . .	+2°3	—3°1	—7°1
	Daily . . .	+2°4	—2°6	—6°5
	Maximum . . .	+2°3	—3°2	—7°2
	Minimum . . .	+2°2	—2°6	—6°1
	Daily . . .	+2°3	—2°9	—6°7
	Maximum . . .	+3°1	+0°7	—4°3
	Minimum . . .	+0°4	—0°1	—4°1
	Daily . . .	+1°8	+0°3	—4°2

The preceding data are interesting, first as showing that the cooling effect was first established at the most westerly stations and gradually extended eastwards, and that it was throughout the whole period greatest at the most westerly stations and decreased with approximate uniformity eastwards. It was absolutely greatest in amount at the hill stations in the Western Himalayas below the level of permanent snow in the cold weather season, and which are hence affected by the occasional or frequent descent of the snow line to much lower levels in the hills than usual.

The temperature conditions of this period were hence directly related to the abnormal snowfall in the mountain districts of North-Western India and Afghanistan and were cumulative during this period.

The preceding gives the more important features of this cold period in Northern India. In connection with it the two following points are of interest :—

1st.—This cold period was preceded by a warmer period than usual during the month of December. The following data illustrate this :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF THE MONTH OF		
	October 1890.	November 1890.	December 1890.
	0	0	0
Punjab	—0°5	—0°1	+0°5
North-Western Provinces and Bihar	—0°9	—1°0	+1°2
Rajputana and Central India	+0°3	+0°8	+0°4
Bengal, Assam and Chota Nagpur	—0°7	—0°9	+1°3
Central Provinces and Berar	+0°2	+1°0	+3°9
Madras	+0°4	0	+1°8
Burma	—1°1	—0°6	+1°0
Extra-Tropical India	—0°1	—0°2	+0°7
Tropical India	—0°4	0	+1°7
Whole of India	—0°2	—0°1	+1°2

The preceding data show that temperature was more or less below the normal over by far the greater part of

India in October 1890. The mean temperature in November was above the normal to a moderate extent in Central India, Rajputana, Berar and the Central Provinces. It was very largely in excess over nearly the whole of India in December, the excess being absolutely greatest in the North Deccan, the Central Provinces, Berar and Central India, where it ranged from 3° to 7°.

2nd.—Throughout the cool period there was a marked contrast between the temperature conditions in Tropical and Extra-Tropical India. The following table gives variation data for these two divisions of India (assuming that the Satpuras form the boundary between them) :—

AREA.	VARIATION FROM NORMAL OF MEAN MONTHLY TEMPERATURE IN		
	January.	February.	March.
Extra-Tropical India	0	0	0
Tropical	+0°3	—2°0	—4°5
	—0°1	—0°2	—0°9

II.—The hot weather period.—The temperature conditions of the hot weather months of April and May were determined mainly by—firstly, the previous conditions; secondly, the abnormally large snow accumulation in the Himalayan and Afghan mountain areas; and thirdly, the continuance of unusually stormy weather in the mountain districts. Weather was much less disturbed in the plains than in the hills, and the rainfall and cloud amounts did not differ from the normal to any important extent.

The following gives comparative data for these months :—

PROVINCE.	VARIATION FROM NORMAL OF MEAN MONTHLY TEMPERATURE IN	
	April.	May.
	0	0
Punjab	—1°5	—1°4
North-Western Provinces	—0°7	—0°7
Rajputana	+0°4	—0°3
Central India	+0°1	—0°6
Bihar and Chota Nagpur	—0°2	—0°4
Bengal	+0°1	—0°8
Assam	+0°3	—1°9
Extra-Tropical India	—0°3	—0°7
Tropical India	0	+0°7
Whole of India	—0°2	—0°2

The table shows that the temperature variations were generally small in amount. There was a steady deficiency throughout in Upper India, which was greatest at the Indus Valley stations, and was almost certainly a residual effect of the unusually severe winter in Afghanistan and the neighbouring districts of Central Asia.

III.—The south-west monsoon period (June to September).—The south-west monsoon period of 1891 may be divided into two periods, viz. :—

(a) June and July, or period of the retarded monsoon currents.

(b) August and September or period of strong monsoon currents and of their full extension to the North Punjab.

The temperature conditions of these two periods stand in strong contrast to each other. During the first of these periods the temperature conditions differed little from the normal in the coast districts. Temperature was, on the other hand, excessive in the interior, the excess being most marked in the Central Provinces in June, and in the North-Western Provinces, Rajputana and Punjab in July. The following table gives variation data for representative stations in these areas:—

PROVINCE.	STATION.	VARIATION OF MEAN MAXIMUM FROM NORMAL IN		VARIATION OF MEAN MINIMUM FROM NORMAL IN		VARIATION FROM NORMAL OF MEAN MONTHLY TEMPERATURE IN	
		June.	July.	June.	July.	June.	July.
DECCAN	Poona	+7.7	+2.1	+1.4	+0.7	+4.6	+1.4
	Sholapur	+6.9	+2.6	+2.2	+1.5	+4.6	+2.1
CENTRAL PROVINCES	Raipur	+10.2	+0.4	+5.1	-0.3	+7.7	+0.1
	Nagpur	+11.4	+1.4	+6.5	+1.0	+9.0	+1.2
	Sironcha	?	?	?	?	+8.5	0
CENTRAL INDIA	Saugor	+5.9	+4.0	+3.7	+1.3	+4.8	+2.7
	Sutna	+6.3	+6.0	+0.5	+1.3	+3.4	+3.7
	Indore	+4.4	+2.8	+2.7	+0.5	+3.6	+1.7
RAJPUTANA	Ajmere	+4.5	+5.3	+3.9	+3.5	+4.2	+4.4
	Deesa	+4.5	+5.8	+0.7	+1.3	+2.6	+3.6
NORTH-WESTERN PROVINCES	Allahabad	+3.8	+7.7	-0.8	+2.4	+1.5	+5.1
	Lucknow	+1.1	+6.3	-0.9	+2.1	+0.1	+4.2
PUNJAB	Lahore	+2.6	+5.1	-2.9	+0.9	-0.2	+3.0
	Peshawar	-1.0	+3.7	-0.6	-2.1	-0.8	+0.8
	Mooltan	+5.5	+4.9	+0.8	+1.3	+3.2	+3.1
SIND	Hyderabad	+2.8	+3.5	-1.3	-0.1	+0.8	+1.7

The excess was hence very great in the Central Provinces and Behar in June, where it averaged 7°. It was large in Upper India in July, the excess in that area averaging 4°.

During the remaining two months of August and September the variations were generally small in amount, temperature being in slight to moderate defect in the areas of increased rainfall and in moderate excess in the areas of partial drought. The following table gives data for stations representing the two areas of partial drought:—

PROVINCE.	STATION.	VARIATION FROM NORMAL OF MEAN MAXIMUM IN		VARIATION FROM NORMAL OF MEAN MINIMUM IN		VARIATION FROM NORMAL OF MEAN MONTHLY TEMPERATURE IN	
		Aug.	Sept.	Aug.	Sept.	Aug.	Sept.
RAJPUTANA	Ajmere	+4.3	+3.5	+2.2	+4.2	+3.3	+3.9
	Sambhar	+4.0	+0.8	+1.6	+2.2	+2.8	+1.5
	Deesa	+2.2	+4.5	+0.5	+3.2	+1.4	+3.9
SOUTHERN INDIA.	Salem	+6.0	+6.5	+2.4	+2.5	+4.2	+4.5
	Madras	+4.1	+3.5	+1.9	+1.7	+3.0	+2.6
	Madura	+1.3	+3.7	+1.2	+2.1	+1.3	+2.9

The temperature variations of the period were hence conditioned by, and strictly related to, the distribution of rainfall throughout the period.

The hottest period of the year on the whole was from the 3rd to the 5th June, immediately before the first general advance of monsoon winds across the Arabian Sea. The following gives temperature data for all stations at which maximum temperatures of 118° or upwards were recorded:—

DATE.	STATION.	Actual maximum temperature.	VARIATION FROM NORMAL OF		
			Maximum temperature.	Minimum temperature.	Mean temperature.
June 3rd	Montgomery	119.4	?	?	?
	Dera Ismail Khan	119.5	+12.6	+1.3	+7.0
"	Mooltan	118.8	+12.3	+3.7	+0
"	Jacobabad	122.0	+9.6	+3.2	+6.4
4th	Montgomery	117.9	?	?	?
"	Dera Ismail Khan	119.5	+12.8	+2.7	+7.8
"	Mooltan	119.3	+12.6	+5.9	+9.3
"	Jacobabad	122.0	+9.9	+4.1	+7.0
5th	Montgomery	114.9	?	?	?
"	Dera Ismail Khan	113.5	+7.2	+7.1	+7.2
"	Mooltan	118.3	+11.8	+9.1	+10.5
"	Jacobabad	118.0	+6.2	+3.6	+4.9

The highest maximum temperatures during the month of May in India were 119.0° at Jacobabad and 117.2° at Hyderabad on the 31st.

The last fortnight of May and the first three days of June was a period of rapidly increasing temperature and of excessive hot weather conditions, and the highest maximum or day temperatures of the year were registered in Upper Sind at the end of this period on the 3rd or 4th. The following gives the highest recorded day temperature of the year 1891 and of the preceding five years for comparison:—

Year.	Date.	Station.	The highest maximum temperature.
1891	3rd & 4th June	Jacobabad	122.0°
1890	25th May	Ditto	122.5°
1889	1st June	Ditto	123.5°
1888	27th May	Ditto	123.0°
1887	29th "	Ditto	122.4°
1886	25th "	Pachpadra	123.1°

The month of July, with the exception of the last four days, was an exceedingly hot and dry period in the Punjab, due to the protracted delay in the complete establishment of the south-west monsoon over the interior of Central and Northern India. The following gives data of the highest maximum temperatures at stations where maximum temperatures of 119° or upwards were registered during the month and variation data for the days on which the highest temperatures were registered at these stations:—

DATE.	STATION.	Actual maximum of 24 hours preceding 8 A.M. of date.	VARIATION FROM NORMAL OF		
			Maximum temperature.	Minimum temperature.	Mean temperature.
14th July	Dera Ismail Khan	120.5	+19.2	+4.2	+11.7
23rd "	Montgomery	120.4	?	?	?
15th "	Khushab	119.1	?	?	?
22nd "	Jacobabad	119.0	+12.5	+3.7	+8.1

It will thus be seen that the extending influence of the local sea winds caused the area of greatest day temperature to be transferred from Upper Sind to the Central and West Punjab in July.

It is not a little remarkable that, notwithstanding the very great differences in the meteorological conditions of Northern India in different years, the maximum temperature of the year varies from year to year within exceedingly narrow limits. This feature of the meteorology of India was dealt with to some length in the Annual Report for the year 1889, pages 44—48.

IV.—*The retreating south-west monsoon period.*—The temperature conditions of the retreating south-west monsoon period were mainly determined by—

- (a) The distribution of rainfall in August and September. The areas of excessive rainfall had unusually cool weather for some weeks after the termination of the rains.
- (b) The early withdrawal of the south-west monsoon in the second week of October (much earlier than usual) from North-Eastern and Central India and the Deccan and the occurrence of heavier rainfall than usual in Southern India due to the retreating south-west monsoon. This rainfall was very irregularly distributed as to time. Longish breaks occurred in November due to two cyclonic storms which advanced across the Bay to Bengal and Burma.
- (c) The existence of conditions in Northern India and the adjacent districts of Central Asia antagonistic to the setting in of the cold weather rains. Hence October, November and December were months of even finer and clearer weather than usual in North-Western and Central India.

The following summarizes the effects of these conditions on the temperature features of the period :—

- (a) Temperature was throughout the whole period in excess in North-Eastern India and the Deccan, where the retreating south-west monsoon rains as well as the south-west monsoon rains were more or less deficient. The following gives data for a few stations :—

PROVINCE.	STATION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE IN		
		October.	November.	December.
NORTH-EAST INDIA .	Calcutta .	0°	+1°1'	+1°5'
	Silchar .	—0°1'	+0°7'	+2°4'
	Patna .	—0°6'	+1°4'	+0°4'
	Bellary .	+1°3'	+0°7'	+2°0'
DECCAN .	Secunderabad .	+0°5'	+1°0'	+1°3'
	Poona .	+0°4'	+0°5'	+0°1'
CIRCARS .	Vizagapatam .	+1°0'	+3°1'	+1°6'

- (b) Temperature was in defect in the Central Provinces, Central India, the North-Western Provinces, and East Punjab (*i.e.*, the area of most excessive rainfall during the previous south-west monsoon period) during the month of October and was generally normal in November, and in slight defect in December. The following gives data for station in those areas.

PROVINCE.	STATION.	VARIATION FROM NORMAL OF MEAN MONTHLY TEMPERATURE IN		
		October.	November.	December.
		0	0	0
CENTRAL PROVINCES .	Raipur .	—0°5'	+0°9'	—0°3'
	Nagpur .	—0°7'	0	—1°1'
	Sironcha .	—0°3'	0	+1°0'
	Saugor .	—0°9'	—0°8'	—1°1'
CENTRAL INDIA .	Sutna .	—1°3'	—0°3'	—2°0'
	Akola .	—0°7'	—0°7'	—1°3'
NORTH-WESTERN PROVINCES .	Lucknow .	—1°6'	+0°1'	0
	Meerut .	—2°2'	—0°3'	—0°1'
EAST PUNJAB .	Lahore .	+0°2'	+2°7'	+1°6'

- (c) In the area of drought in Rajputana, Sind and the West Punjab temperature was considerably in excess during this period, *e.g.* :—

STATION.	VARIATION FROM NORMAL OF MEAN TEMPERATURE OF		
	October.	November.	December.
	0	0	0
Mooltan	+2°5'	+4°4'	+2°7'
Deesa	+3°2'	+2°9'	+3°1'
Ajmere	+4°2'	+2°7'	+2°6'
Hyderabad	+1°7'	+5°3'	+1°6'

Hence the temperature conditions of this period were mainly determined by the rainfall of the period and of the preceding monsoon months of August and September.

It may also be noted as an interesting feature that the mean temperature of December 1891, preceding an unusually dry-weather period in January and February 1892, was even more largely above the normal in Northern India than in December 1890, which preceded an abnormally wet and stormy period in January, February and March 1891.

The following gives data :—

DISTRICT.	VARIATION IN DECEMBER 1890, OF			VARIATION IN DECEMBER 1891, OF		
	Mean temperature.	Mean cloud.	Mean rainfall.	Mean temperature.	Cloud.	Rainfall.
	0		Inches.	0		Inches.
Punjab	+0°5'	+3°2'	+1°16'	+2°0'	—0°3'	—0°66'
Rajputana	+0°4'	+1°6'	+0°17'	+0°4'	—0°1'	—0°19'
Extra Tropical India.	+0°7'	+1°4'	0°23'	+1°0'	—0°3'	—0°32'

Atmospheric Pressure.

Full information is given in the annual reports hitherto published by the Department of the barometers in use at Indian observatories and of the methods of reducing the observations and obtaining the mean daily pressures (*e.g.*, pages 58 and 59 of the report for 1890).

In Table II given in each monthly review the monthly mean pressures (corrected for temperature) are given in the fourth figure column, and in the fifth figure column the variation from the normal for each station. The variation data are obtained by a comparison of the actual monthly means with the normal monthly means published in the last two annual reports (*e.g.*, Table XV in the reports for 1889 and 1890). These normal monthly means will be used for comparison until 1894 probably, when they will be revised up to date. The figures in these two columns (*viz.*, the fourth and fifth) are strictly comparable with the corresponding data of previous years published in the annual reports. In the sixth column of Table II in each monthly review the mean pressures reduced to sea-level and corrected to constant gravity (Lat. 45°) are given. These, it should be noted, are not comparable with the sea-level pressure values of previous years given in the annual reports. No corrections

were applied, previous to 1891, to reduce the monthly pressure means to standard gravity.

In Table I of each monthly review the pressure data are given for a fixed hour (*viz.*, 8 A.M.) of the day. The second figure column gives the mean 8 A.M. pressure for the month corrected for temperature. In the third figure column the variations of the mean 8 A.M. pressure from the normal mean 8 A.M. pressure are exhibited. The normal means have been obtained from the 10 A.M. readings of the eleven-year period, 1878-88, with corrections to reduce the readings to 8 A.M., deduced from the hourly observations taken at twenty-five representative stations in India during the period 1878-88. The use of these corrections introduces an element of doubt into the means, but the regularity of the diurnal oscillation is so marked in India that the variations determined from the 8 A.M. means thus obtained agree very closely in almost all cases with those obtained from the comparison of the actual daily means and normal means. The following table (Table VII) gives the monthly mean 8 A.M. pressure at stations in India determined by the methods stated above from 10 A.M. observations during the period 1878-88:—

TABLE VII.—Normal mean monthly 8 A.M. pressures of 97 stations in India and Burma.

STATION.	Elevation in feet.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
		Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
Moulmein	94	29'935	29'886	29'860	29'818	29'767	29'728	29'722	29'754	29'780	29'854	29'883	29'930	29'826
Toungoo	181	29'852	29'816	29'765	29'702	29'641	29'505	29'594	29'616	29'664	29'742	29'794	29'845	29'719
Rangoon	41	30'005	29'971	29'934	29'869	29'813	29'761	29'761	29'787	29'826	29'893	29'938	29'987	29'879
Bassein	21	30'020	29'982	29'945	29'880	29'817	29'764	29'761	29'791	29'830	29'903	29'947	30'001	29'887
Diamond Island	41	29'997	29'979	29'945	29'884	29'809	29'752	29'766	29'781	29'817	29'884	29'930	29'976	29'877
Akyab	20	30'049	30'012	29'966	29'888	29'806	29'706	29'697	29'742	29'803	29'900	29'965	30'025	29'880
Thayetmyo	134	29'906	29'856	29'801	29'723	29'671	29'615	29'612	29'641	29'697	29'782	29'847	29'903	29'755
Silchar	104	29'980	29'936	29'862	29'776	29'708	29'580	29'562	29'616	29'697	29'815	29'902	29'962	29'783
Sibsagar	333	29'776	29'716	29'639	29'553	29'489	29'348	29'337	29'383	29'477	29'621	29'722	29'776	29'570
Dhubri	115	29'981	29'913	29'811	29'715	29'670	29'528	29'506	29'564	29'674	29'814	29'917	29'983	29'756
Chittagong	87	29'990	29'947	29'883	29'799	29'720	29'598	29'582	29'637	29'718	29'833	29'907	29'969	29'799
Dacca	22	30'059	30'006	29'915	29'816	29'747	29'614	29'602	29'657	29'749	29'888	29'978	30'041	29'839
Barisal	12	30'056	29'999	29'921	29'825	29'752	29'623	29'601	29'652	29'754	29'886	29'968	30'038	29'840
Mymensingh	55	30'016	29'974	29'881	29'771	29'729	29'587	29'575	29'632	29'720	29'846	29'966	30'003	29'808
Jessore	33	30'050	29'995	29'899	29'795	29'722	29'588	29'575	29'629	29'734	29'881	29'977	30'041	29'824
Calcutta	21	30'072	30'014	29'911	29'798	29'719	29'579	29'569	29'626	29'729	29'889	29'998	30'064	29'831
Saugor Island	25	30'060	30'003	29'910	29'807	29'722	29'581	29'569	29'626	29'724	29'881	29'988	30'055	29'827
Burdwan	99	29'996	29'935	29'829	29'712	29'636	29'498	29'490	29'548	29'657	29'815	29'928	29'992	29'753
Berhampore	66	30'028	29'966	29'856	29'741	29'674	29'536	29'529	29'586	29'691	29'852	29'961	30'021	29'787
Balasore	54	30'034	29'974	29'878	29'767	29'674	29'539	29'541	29'587	29'686	29'851	29'965	30'031	29'794
False Point	21	30'070	30'013	29'926	29'822	29'728	29'597	29'592	29'638	29'729	29'888	29'994	30'063	29'838
Cuttack	80	30'000	29'944	29'851	29'745	29'650	29'525	29'522	29'573	29'659	29'822	29'932	29'999	29'769
Hazaribagh	2,007	28'016	27'969	27'908	27'812	27'724	27'607	27'595	27'644	27'746	27'901	27'990	28'024	27'828
Gaya	375	29'708	29'646	29'543	29'416	29'323	29'197	29'200	29'252	29'361	29'533	29'658	29'715	29'463
Patna	183	29'921	29'849	29'733	29'607	29'530	29'401	29'401	29'455	29'564	29'737	29'867	29'929	29'666
Purneah	125	29'961	29'892	29'787	29'671	29'614	29'476	29'470	29'521	29'627	29'787	29'900	29'957	29'722
Darbhanga	166	29'927	29'856	29'746	29'630	29'566	29'431	29'424	29'480	29'585	29'756	29'873	29'931	29'684
Benares	267	29'822	29'758	29'647	29'518	29'421	29'291	29'290	29'348	29'461	29'641	29'774	29'833	29'567
Allahabad	309	29'783	29'721	29'611	29'482	29'379	29'252	29'248	29'308	29'423	29'602	29'734	29'793	29'528
Gorakhpur	256	29'822	29'750	29'642	29'518	29'446	29'313	29'308	29'364	29'477	29'648	29'775	29'831	29'575

TABLE VII.—Normal mean monthly 8 A.M. pressures of 97 stations in India and Burma—continued.

STATION.	Elevation in feet.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
		Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
Lucknow	370	29'714	29'648	29'641	29'416	29'324	29'156	29'192	29'251	29'364	29'539	29'669	29'724	29'465
Bareilly	568	29'482	29'420	29'319	29'194	29'112	28'986	28'988	29'038	29'148	29'322	29'445	29'498	29'238
Roorkee	887	29'149	29'092	28'998	28'880	28'792	28'672	28'679	28'727	28'837	29'007	29'123	29'167	28'927
Meerut	737	29'308	29'255	29'154	29'029	28'933	28'813	28'813	28'866	28'980	29'152	29'275	29'325	29'075
Delhi	718	29'330	29'287	29'186	29'058	28'951	28'831	28'833	28'886	29'007	29'173	29'300	29'356	29'100
Lahore	702	29'347	29'304	29'198	29'067	28'943	28'819	28'821	28'874	29'004	29'180	29'312	29'370	29'103
Ludhiana	812	29'229	29'175	29'081	28'958	28'849	28'727	28'732	28'784	28'913	29'075	29'193	29'246	28'997
Sialkot	829	29'197	29'151	29'058	28'934	28'822	28'696	28'700	28'753	28'874	29'047	29'167	29'216	28'968
Rawalpindi	1,649	28'356	28'316	28'241	28'146	28'036	27'913	27'897	27'948	28'088	28'259	28'358	28'404	28'164
Peshawar	1,110	28'970	28'932	28'844	28'726	28'588	28'430	28'418	28'471	28'626	28'814	28'934	28'992	28'729
D. I. Khan	573	29'501	29'465	29'364	29'234	29'092	28'937	28'928	28'981	29'121	29'316	29'458	29'522	29'243
Mooltan	420	29'666	29'624	29'509	29'377	29'231	29'086	29'070	29'134	29'275	29'467	29'618	29'681	29'395
Sirsa	662	29'396	29'349	29'246	29'116	28'994	28'877	28'867	28'925	29'052	29'227	29'354	29'412	29'151
Jacobabad	186	29'911	29'879	29'734	29'605	29'458	29'314	29'290	29'357	29'507	29'703	29'858	29'929	29'629
Hyderabad	117	29'997	29'952	29'825	29'706	29'565	29'420	29'384	29'459	29'601	29'775	29'927	30'000	29'718
Kurrachee	49	30'063	30'022	29'919	29'816	29'686	29'547	29'509	29'584	29'727	29'880	30'003	30'068	29'819
Jeyapore	1,431	28'617	28'582	28'496	28'392	28'287	28'181	28'152	28'210	28'339	28'499	28'597	28'645	28'416
Sambhar	1,254	28'785	28'747	28'661	28'552	28'444	28'340	28'311	28'369	28'497	28'659	28'764	28'813	28'579
Ajmere	1,611	28'435	28'399	28'321	28'225	28'119	28'018	27'986	28'039	28'160	28'320	28'415	28'458	28'241
Deesa	466	29'600	29'560	29'482	29'390	29'285	29'172	29'131	29'202	29'327	29'464	29'560	29'607	29'398
Rajkot	429	29'633	29'602	29'531	29'451	29'342	29'228	29'195	29'265	29'380	29'503	29'583	29'631	29'445
Nowgong	757	29'315	29'268	29'167	29'050	28'938	28'825	28'812	28'870	28'981	29'157	29'275	29'327	29'082
Sutna	1,040	29'014	28'967	28'876	28'759	28'651	28'536	28'524	28'585	28'694	28'807	28'978	29'030	28'790
Indore	1,823	28'198	28'169	28'110	28'031	27'941	27'847	27'817	27'872	27'965	28'102	28'178	28'209	28'037
Neemuch	1,630	28'401	28'369	28'300	28'212	28'111	28'011	27'979	28'038	28'151	28'299	28'391	28'427	28'224
Surat	36	30'027	29'999	29'937	29'859	29'781	29'669	29'636	29'608	29'801	29'897	29'967	30'019	29'858
Agra	555	29'524	29'475	29'373	29'246	29'135	29'017	29'008	29'064	29'186	29'300	29'488	29'543	29'285
Jhansi	840	29'208	29'163	29'075	28'959	28'850	28'734	28'711	28'767	28'885	29'051	29'166	29'217	28'982
Belgaum	2,524	27'484	27'464	27'433	27'375	27'326	27'270	27'268	27'290	27'351	27'398	27'436	27'473	27'381
Sholapur	1,590	28'443	28'409	28'350	28'270	28'211	28'159	28'152	28'183	28'250	28'328	28'386	28'434	28'298
Poona	1,840	28'186	28'156	28'113	28'048	27'989	27'905	27'896	27'937	28'013	28'092	28'148	28'188	28'056
Malegaon	1,430	28'611	28'573	28'518	28'441	28'361	28'274	28'249	28'302	28'389	28'500	28'576	28'616	28'451
Akola	930	29'114	29'069	28'995	28'904	28'818	28'741	28'732	28'780	28'856	28'986	29'073	29'125	28'933
Amraoti	1,216	28'818	28'774	28'703	28'613	28'521	28'443	28'432	28'479	28'555	28'644	28'724	28'782	28'637
Khandwa	1,044	28'984	28'950	28'881	28'795	28'705	28'618	28'595	28'649	28'734	28'868	28'954	28'997	28'811
Hoshangabad	1,020	29'040	29'002	28'922	28'830	28'730	28'633	28'611	28'665	28'756	28'812	29'013	29'060	28'848
Nagpur	1,025	29'016	28'971	28'895	28'797	28'697	28'614	28'606	28'663	28'729	28'879	28'974	29'027	28'822
Seoni	2,030	28'000	27'962	27'904	27'822	27'730	27'629	27'608	27'656	27'742	27'894	27'976	28'012	27'828
Jubbulpore	1,327	28'711	28'668	28'592	28'492	28'388	28'285	28'266	28'320	28'420	28'581	28'682	28'725	28'511
Saugor	1,762	28'270	28'229	28'160	28'076	27'975	27'873	27'846	27'898	28'002	28'168	28'255	28'290	28'087
Raipur	960	29'077	29'029	28'946	28'845	28'744	28'646	28'638	28'691	28'772	28'935	29'032	29'089	28'870
Secunderabad	1,787	28'255	28'222	28'171	28'104	28'031	27'966	27'956	27'988	28'038	28'136	28'201	28'248	28'110
Bombay	37	30'011	29'985	29'936	29'869	29'813	29'714	29'704	29'750	29'834	29'893	29'949	29'995	29'871
Ratnagiri	110	29'899	29'877	29'845	29'777	29'728	29'660	29'665	29'698	29'762	29'836	29'896	29'952	29'825
Karwar	44	29'976	29'961	29'928	29'865	29'816	29'780	29'792	29'812	29'866	29'910	29'950	29'987	29'878
Mangalore	26	29'996	29'983	29'954	29'886	29'848	29'833	29'856	29'877	29'885	29'912	29'916	29'955	29'916
Calicut	27	29'987	29'977	29'951	29'894	29'856	29'835	29'877	29'885	29'920	29'920	29'924	29'959	29'916
Cochin	10	29'984	29'980	29'960	29'905	29'870	29'884	29'900	29'900	29'938	29'932	29'936	29'956	29'929
Madura	447	29'576	29'568	29'528	29'450	29'389	29'367	29'380	29'386	29'427	29'462	29'497	29'536	29'464
Salem	940	29'117	29'105	29'059	28'986	28'927	28'905	28'916	28'925	28'971	29'003	29'036	29'085	29'003
Coimbatore	1,348	28'677	28'664	28'631	28'561	28'501	28'482	28'491	28'499	28'543	28'576	28'605	28'649	28'573
Bangalore	2,981	27'091	27'077	27'047	26'991	26'939	26'900	26'912	26'917	26'961	27'004	27'024	27'060	26'994
Negapatam	31	30'002	29'993	29'950	29'868	29'787	29'765	29'783	29'794	29'840	29'880	29'915	29'961	29'878
Trichinopoly	255	29'787	29'773	29'728	29'648	29'582	29'557	29'571	29'580	29'623	29'660	29'701	29'752	29'664
Madras	22	30'047	30'024	29'969	29'880	29'782	29'744	29'766	29'782	29'825	29'869	29'910	29'950	29'878
Masulipatam	15	30'059	30'030	29'968	29'877	29'765	29'693	29'708	29'737	29'789	29'833	29'876	30'038	29'878
Bellary	1,475	28'543	28'509	28'455	28'386	28'333	28'296	28'301	28'324	28'375	28'433	28'485	28'533	28'414
Vizagapatam	31	30'048	30'009	29'940	29'845	29'740	29'621	29'626	29'667	29'740	29'874	29'971	30'038	29'843
Quetta	5,502	24'666	24'649	24'633	24'606	24'564	24'464	24'414	24'460	24'581	24'705	24'748	24'725	24'601
Murree	6,344	23'853	23'815	23'841	23'823	23'785	23'722	23'705	23'738	23'827	23'919	23'923	23'905	23'821
Simla	7,274	23'077	23'037	23'070	23'060	23'035	22'967	22'943	22'975	23'061	23'142	23'143	23'125	23'053
Chakrata	7,052	23'256	23'229	23'253	23'245	23'211	23'134	23'118	23'149	23'227	23'313	23'318	23'302	23'230
Darjeeling	6,069	24'122	24'091	24'101	24'077	24'036	23'954	23'944	23'976	24'053	24'145	24'164	24'155	24'068
Ranikhet	7,421	22'979	22'934	22'967	22'949	22'943	22'885	22'882	22'911	23'002	23'054	23'056	23'027	22'966
Mount Abu	3,945	26'133	26'106	26'089	26'049	25'995	25'874	25'830	25'866	25'987	26'119	26'259	26'161	26'037
Pachmarhi	3,511	26'563	26'537	26'510	26'451	26'369	26'269	26'233	26'284	26'370	26'504	26'558	26'580	26'436
Wellington	6,200	24'287	24'294	24'298	24'261	24'223	24'187	24'195	24'194	24'226	24'249	24'254	24'277	24'245

In the following table the normal mean 8 A.M. pressures, reduced to sea-level and corrected to constant gravity

(Lat. 45°) are given for each month in the year for 87 stations in India and Burma.

TABLE VIII.—Normal mean monthly 8 A.M. pressures (reduced to sea-level and constant gravity at Lat. 45°) of 87 stations in India and Burma.

STATION.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
Moulmein	29 +	29 +	29 +	29 +	29 +	29 +	29 +	29 +	29 +	29 +	29 +	29 +	29 +
Poungoo	'971	'920	'893	'851	'800	'761	'755	'788	'814	'887	'917	'964	'860
Rangoon	'984	'949	'914	'848	'792	'740	'740	'766	'805	'872	'917	'962	'857
Bassein	'977	'941	'905	'839	'776	'723	'720	'750	'789	'862	'906	'959	'846
Diamond Island	'975	'936	'923	'862	'787	'730	'744	'759	'795	'862	'908	'952	'854
Akyab	1'013	'976	'931	'853	'771	'671	'662	'707	'768	'865	'930	'988	'845
Thayetmyo	'988	'938	'880	'800	'747	'692	'689	'718	'775	'861	'926	'985	'833
Silchar	1'042	'998	'921	'833	'764	'634	'617	'672	'752	'872	'960	1'023	'841
Sibsagar	1'089	1'024	'940	'849	'781	'634	'621	'669	'765	'924	1'026	1'089	'868
Dhubri	1'058	'990	'885	'786	'740	'597	'574	'632	'743	'886	'991	1'059	'828
Chittagong	1'029	'985	'920	'834	'754	'632	'616	'671	'752	'868	'944	1'007	'834
Dacca	1'030	'977	'885	'787	'717	'583	'572	'627	'719	'858	'948	1'012	'810
Barisal	1'014	'957	'879	'782	'709	'580	'558	'609	'711	'842	'925	'996	'797
Mymensing	1'027	'985	'891	'781	'738	'595	'583	'640	'729	'855	'976	1'014	'818
Jessore	1'031	'976	'880	'775	'702	'567	'554	'609	'714	'861	'958	1'022	'804
Calcutta	1'040	'981	'878	'765	'686	'545	'535	'593	'696	'856	'965	1'032	'798
Saugor Island	1'030	'973	'880	'776	'691	'550	'538	'595	'693	'850	'958	1'025	'797
Burdwan	1'048	'985	'878	'758	'681	'543	'535	'593	'703	'862	'976	1'044	'801
Berhampore	1'047	'985	'873	'757	'689	'551	'544	'601	'707	'868	'978	1'039	'803
False Point	1'033	'976	'889	'785	'690	'559	'555	'601	'692	'851	'957	1'027	'801
Cuttack	1'026	'969	'875	'768	'672	'546	'544	'596	'681	'846	'957	1'026	'792
Hazaribagh	1'062	1'000	'921	'737	'636	'510	'527	'584	'695	'871	'983	1'067	'799
Gaya	1'060	'996	'884	'743	'647	'517	'524	'578	'688	'867	1'002	1'068	'798
Patna	1'068	'994	'874	'742	'664	'533	'534	'588	'698	'874	1'009	1'075	'804
Purneah	1'048	'980	'870	'751	'693	'552	'547	'598	'705	'868	'985	1'045	'804
Darbhanga	1'057	'986	'872	'751	'686	'549	'542	'598	'704	'879	'999	1'062	'807
Benares	1'066	'999	'882	'744	'643	'511	'511	'572	'685	'871	1'011	1'076	'798
Allahabad	1'070	1'006	'889	'748	'640	'512	'510	'573	'688	'873	1'013	1'080	'800
Gorakhpur	1'055	'982	'869	'736	'660	'527	'522	'580	'693	'870	1'001	1'063	'797
Lucknow	1'072	1'003	'887	'747	'651	'520	'518	'580	'694	'877	1'016	1'083	'804
Bareilly	1'061	'998	'882	'735	'644	'511	'515	'572	'685	'872	1'008	1'077	'797
Roorkee	1'078	1'027	'910	'749	'642	'512	'516	'584	'697	'894	1'013	1'084	'812
Meerut	1'073	1'016	'904	'739	'632	'504	'499	'576	'686	'878	1'024	1'093	'802
Delhi	1'068	1'020	'907	'747	'628	'498	'500	'569	'692	'874	1'019	1'094	'801
Lahore	1'084	1'038	'919	'754	'614	'477	'479	'541	'676	'875	1'027	1'110	'800
Ludhiana	1'081	1'021	'917	'751	'625	'492	'486	'562	'696	'887	1'022	1'099	'803
Sialkot	1'073	1'030	'922	'758	'621	'477	'479	'554	'677	'871	1'018	1'093	'798
Rawal Pindi	1'081	1'045	'945	'792	'636	'469	'450	'527	'679	'909	1'038	1'143	'810
Peshawar	1'111	1'083	'962	'805	'637	'452	'437	'504	'671	'896	1'040	1'130	'811
Dera Ismail Khan	1'098	1'069	'956	'774	'636	'469	'460	'519	'667	'880	1'034	1'127	'807
Mooltan	1'089	1'046	'925	'772	'616	'463	'446	'514	'657	'866	1'027	1'103	'794
Sirsa	1'083	1'031	'915	'755	'615	'488	'479	'546	'679	'873	1'020	1'100	'799
Jacobabad	1'077	1'044	'890	'755	'604	'457	'433	'502	'654	'855	1'014	1'092	'781
Hyderabad	1'077	1'031	'901	'779	'636	'490	'454	'531	'673	'848	1'001	1'078	'792
Kurrachee	1'063	1'025	'921	'818	'687	'547	'510	'586	'729	'882	1'005	1'070	'820
Jeyapore	1'107	1'067	'954	'785	'663	'535	'507	'595	'731	'916	1'051	1'130	'837
Sambhar	1'097	1'053	'945	'775	'646	'523	'493	'575	'715	'903	1'044	1'125	'825
Ajmere	1'121	1'068	'956	'800	'669	'547	'526	'600	'718	'907	1'051	1'135	'842
Deesa	1'050	1'009	'917	'814	'702	'589	'549	'625	'750	'890	'996	1'054	'829
Rajkot	1'039	1'006	'926	'838	'722	'606	'574	'648	'764	'889	'976	1'033	'835
Nowgong	1'089	1'032	'918	'764	'642	'522	'513	'589	'702	'891	1'028	1'102	'816
Sutna	1'087	1'028	'916	'759	'634	'515	'510	'590	'701	'893	1'027	1'106	'814
Indore	1'069	1'026	'945	'794	'683	'586	'589	'659	'754	'901	1'000	1'081	'841
Neemuch	1'083	1'040	'948	'795	'675	'568	'546	'633	'749	'914	1'037	1'107	'841
Surat	1'007	'980	'918	'839	'761	'649	'617	'679	'782	'878	'947	1'000	'838
Agra	1'085	1'033	'917	'769	'646	'522	'514	'582	'705	'892	1'034	1'106	'817
Jhansi	1'063	1'012	'911	'755	'633	'500	'487	'566	'687	'867	'997	1'071	'796
Belgaum	'997	'956	'915	'827	'765	'707	'737	'769	'833	'873	'928	'973	'857
Sholapur	1'026	'981	'897	'790	'727	'672	'679	'726	'800	'876	'950	1'018	'844
Poona	1'065	1'000	'938	'832	'768	'670	'684	'738	'815	'905	'983	1'059	'872
Malegaon	1'076	1'019	'938	'816	'726	'636	'632	'696	'783	'900	1'016	1'077	'860
Akola	1'048	'995	'898	'783	'684	'601	'615	'671	'748	'888	'991	1'066	'832
Amraoti	1'036	'986	'891	'778	'667	'584	'606	'659	'739	'884	'985	1'055	'823
Khandwa	1'046	1'003	'916	'796	'695	'605	'599	'661	'748	'894	1'003	1'061	'836
Hoshangabad	1'082	1'039	'930	'809	'693	'586	'590	'655	'729	'916	1'041	1'108	'848
Nagpur	1'047	'994	'897	'772	'657	'554	'586	'640	'718	'878	'987	1'058	'816
Seoni	1'068	1'023	'933	'812	'690	'599	'601	'664	'758	'934	1'047	1'120	'852
Jubbulpore	1'082	1'028	'915	'777	'653	'541	'519	'613	'715	'899	1'031	1'107	'826
Saugor	1'078	1'081	'935	'781	'655	'538	'546	'620	'727	'915	1'037	1'106	'835

TABLE VIII.—Normal mean monthly 8 A.M. pressure (reduced to sea-level and constant gravity at Lat. 45°) of 87 stations in India and Burma—concluded.

STATION.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
Raipur	29 +	29 +	29 +	29 +	29 +	29 +	29 +	29 +	29 +	29 +	29 +	29 +	29 +
Secunderabad	1'047	'989	'895	'760	'648	'528	'560	'616	'700	'873	'984	1'064	'805
Bombay	1'052	1'000	'923	'826	'738	'666	'692	'728	'783	'887	'972	1'035	'859
Ratnagiri	'988	'963	'913	'847	'790	'692	'682	'728	'812	'870	'926	'972	'849
Karwar	'950	'927	'896	'826	'777	'709	'713	'748	'811	'842	'885	'930	'835
Mangalore	'954	'940	'909	'845	'796	'700	'771	'791	'846	'864	'890	'930	'858
Calicut	'955	'942	'913	'845	'808	'793	'816	'824	'872	'875	'884	'924	'871
Cochin	'944	'934	'909	'852	'815	'815	'835	'834	'879	'878	'883	'917	'875
Madura	'923	'919	'900	'845	'811	'824	'840	'840	'878	'872	'876	'896	'869
Salem	'969	'958	'916	'814	'770	'748	'761	'768	'809	'851	'886	'926	'850
Coimbatore	1'023	1'005	'951	'867	'797	'789	'803	'806	'850	'894	'930	'978	'891
Bangalore	1'010	'984	'940	'846	'789	'783	'795	'802	'849	'886	'918	'967	'881
Negapatam	1'054	1'003	'946	'873	'793	'797	'822	'830	'864	'912	'953	'996	'904
Trichinopoly	'962	'953	'912	'830	'749	'726	'745	'755	'802	'842	'877	'922	'840
Madras	'982	'966	'920	'837	'769	'745	'759	'770	'813	'853	'893	'945	'854
Masulipatam	'999	'980	'924	'834	'736	'698	'720	'736	'780	'847	'899	'960	'843
Bellary	1'001	'972	'919	'828	'716	'644	'659	'689	'741	'845	'927	'988	'827
Vizagapatam	1'007	'957	'880	'796	'737	'706	'721	'751	'807	'868	'931	'981	'805
	1'016	'982	'911	'815	'711	'591	'597	'637	'711	'844	'941	1'007	'814

The following table gives the mean monthly pressures (obtained by the methods described in pages 58—59 of the annual report for 1890), reduced to sea level and constant gravity.

TABLE IX.—Normal mean monthly pressures (reduced to sea-level and constant gravity at Lat. 45°) of 108 stations in India, etc.

STATION.	No. of years.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
		Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
Galle	18—20	'843	'841	'820	'779	'770	'776	'800	'792	'821	'817	'817	'826	'809
Hambantota	17—18	'832	'826	'816	'783	'755	'750	'765	'757	'785	'791	'815	'816	'791
Colombo	19—20	'845	'845	'824	'781	'769	'781	'806	'796	'820	'820	'823	'832	'812
Kandy	18—20	'893	'883	'857	'810	'789	'800	'817	'818	'839	'847	'851	'868	'838
Batticaloa	17—19	'899	'888	'848	'784	'741	'729	'803	'748	'777	'793	'833	'857	'808
Trincomalee	17—20	'881	'876	'835	'763	'711	'695	'718	'721	'750	'779	'819	'852	'784
Jaffna	18	'845	'883	'836	'775	'768	'701	'728	'726	'761	'786	'827	'875	'793
Port Blair	21—23	'885	'880	'849	'793	'744	'717	'738	'740	'773	'800	'835	'864	'802
Mergui	16	'878	'875	'839	'791	'771	'762	'771	'773	'796	'814	'837	'863	'814
Moulmein	13	'910	'875	'842	'776	'734	'718	'712	'728	'751	'801	'842	'892	'798
Toungoo	13	'948	'889	'817	'747	'707	'686	'679	'700	'745	'816	'883	'933	'796
Rangoon	16	'930	'891	'846	'781	'736	'716	'715	'735	'764	'825	'874	'916	'811
Bassein	13	'939	'896	'851	'783	'732	'695	'691	'715	'750	'817	'865	'921	'804
Diamond Island	16	'940	'912	'864	'802	'744	'700	'714	'725	'763	'820	'870	'917	'814
Akyab	23—24	'961	'917	'866	'795	'724	'640	'635	'671	'727	'816	'899	'953	'800
Thayetmyo	12—13	'928	'868	'807	'718	'679	'650	'642	'669	'719	'805	'877	'931	'775
Silchar	20—22	'993	'945	'863	'779	'705	'593	'580	'629	'713	'811	'932	'991	'796
Sibsagar	17	1'042	'976	'890	'794	'718	'595	'573	'620	'718	'862	'978	1'039	'816
Dhubri	16	1'001	'943	'827	'728	'673	'568	'551	'602	'702	'837	'929	'993	'780
Chittagong	19—20	'984	'943	'867	'784	'708	'603	'595	'641	'718	'822	'912	'974	'796
Dacca	22—24	'976	'923	'826	'732	'663	'550	'541	'592	'682	'809	'918	'978	'766
Jessore	20—21	'980	'920	'820	'722	'649	'531	'521	'580	'667	'811	'927	'985	'758
Calcutta	38	'983	'919	'822	'717	'628	'513	'505	'563	'653	'802	'928	'988	'752
Saugor Island	23—24	'976	'918	'827	'725	'640	'517	'506	'560	'652	'797	'921	'986	'752
Burdwan	17—18	'987	'929	'808	'696	'621	'507	'500	'560	'661	'812	'932	'991	'750
Berhampore	23	'981	'917	'805	'693	'618	'501	'503	'565	'661	'809	'929	'988	'747
False Point	24	'992	'938	'849	'745	'655	'538	'530	'585	'663	'808	'936	'999	'770
Cuttack	23	'983	'923	'826	'718	'631	'523	'523	'574	'658	'806	'931	'991	'758
Hazaribagh	22—24	1'027	'942	'824	'693	'596	'488	'495	'554	'652	'834	'965	'985	'753
Gaya	15—17	1'022	'945	'828	'703	'605	'487	'502	'562	'655	'831	'970	1'036	'761
Patna	22—23	1'011	'945	'816	'691	'601	'482	'489	'551	'652	'822	'959	1'025	'755
Purneah	13	'962	'894	'773	'653	'585	'462	'457	'515	'616	'786	'902	'970	'715
Darbhanga	16	1'005	'940	'813	'692	'624	'501	'498	'556	'663	'828	'946	1'012	'759
Ghazipur	16	1'009	'946	'816	'675	'583	'464	'468	'527	'638	'813	'945	1'020	'743
Benares	19—20	1'013	'936	'828	'692	'586	'466	'475	'525	'638	'818	'963	1'031	'747
Allahabad	16	1'013	'956	'822	'687	'581	'458	'469	'537	'644	'826	'960	1'029	'748
Gorakhpur	13	1'001	'934	'808	'671	'595	'473	'475	'538	'641	'822	'953	1'023	'744

TABLE IX.—Normal mean monthly pressures (reduced to sea-level and constant gravity at Lat. 45°) of 108 stations in India, etc.—concluded.

STATION.	No. of years.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
		Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
Lucknow	18-19	29 + 1'018	29 + '957	29 + '831	29 + '692	29 + '592	29 + '468	29 + '477	29 + '545	29 + '654	29 + '837	29 + '973	29 + '1'036	29 + '755
Bareilly	13	1'014	'947	'824	'684	'582	'457	'468	'531	'639	'824	'961	'1'035	'747
Dehra Dun	16	1'033	'980	'858	'716	'614	'479	'497	'554	'676	'864	'997	'1'056	'777
Roorkee	16	1'020	'965	'834	'684	'576	'439	'459	'528	'644	'833	'972	'1'039	'749
Meerut	17-18	1'032	'970	'835	'695	'570	'439	'456	'524	'636	'829	'977	'1'045	'749
Delhi	13	1'036	'974	'835	'690	'577	'441	'451	'520	'639	'831	'975	'1'051	'753
Lahore	17-18	1'050	'998	'862	'716	'574	'419	'426	'503	'633	'834	'1'003	'1'072	'756
Ludhiana	16	1'039	'985	'859	'707	'579	'435	'446	'513	'648	'835	'982	'1'054	'757
Sialkot	13	1'057	'989	'870	'724	'587	'433	'441	'513	'641	'839	'988	'1'064	'762
Rawalpindi	13	1'097	'1'036	'922	'773	'621	'452	'442	'529	'669	'857	'1'042	'1'116	'797
Peshawar	16	1'114	'1'069	'945	'799	'628	'441	'418	'495	'665	'893	'1'052	'1'131	'804
Dera Ismail Khan	13	1'073	'1'021	'900	'755	'595	'424	'413	'480	'630	'846	'1'015	'1'093	'769
Mooltan	13	1'048	'1'002	'868	'724	'570	'412	'398	'477	'618	'831	'998	'1'066	'751
Sirsa	13	1'048	'990	'860	'711	'574	'436	'432	'504	'639	'834	'986	'1'060	'756
Jacobabad	16	1'028	'978	'837	'690	'552	'397	'373	'464	'611	'816	'971	'1'047	'732
Hyderabad	13	1'033	'983	'847	'728	'591	'451	'419	'506	'644	'819	'965	'1'042	'751
Kurrachee	16	1'012	'963	'829	'680	'552	'416	'483	'571	'701	'854	'963	'1'029	'785
Bhuj	13	'997	'958	'860	'763	'658	'532	'505	'586	'694	'835	'942	'1'001	'777
Bickaneer	13	1'042	'979	'835	'698	'555	'434	'417	'500	'625	'812	'961	'1'042	'742
Pachpadra	3-6	1'014	'972	'842	'719	'586	'478	'448	'495	'616	'781	'921	'991	'739
Jeyapore	16	1'034	'982	'851	'719	'595	'475	'480	'557	'670	'859	'987	'1'058	'772
Sambhar	13	1'030	'978	'853	'715	'583	'492	'475	'541	'648	'841	'986	'1'051	'766
Ajmere	16	1'059	'1'008	'877	'739	'614	'511	'497	'578	'683	'881	'1'019	'1'083	'794
Deesa	16	'979	'943	'848	'744	'639	'534	'513	'592	'704	'841	'942	'990	'771
Rajkot	13	'986	'950	'864	'772	'671	'556	'546	'620	'720	'841	'928	'980	'786
Nowgong	16	1'019	'972	'833	'698	'577	'462	'479	'545	'652	'828	'969	'1'034	'754
Sutna	16	1'016	'968	'830	'691	'573	'462	'472	'541	'651	'834	'969	'1'036	'753
Indore	13	'989	'950	'843	'731	'621	'540	'544	'610	'666	'852	'964	'1'015	'780
Neemuch	13	1'004	'872	'818	'636	'602	'504	'503	'581	'598	'763	'969	'1'023	'740
Surat	13	'955	'927	'862	'778	'710	'607	'586	'650	'730	'826	'903	'949	'791
Agra	16	1'026	'974	'841	'701	'578	'449	'461	'533	'652	'834	'977	'1'046	'755
Jhansi	13	1'014	'965	'841	'699	'573	'466	'471	'542	'649	'825	'959	'1'028	'752
Belgaum	15-16	'907	'876	'814	'738	'711	'690	'704	'732	'773	'809	'860	'908	'794
Sholapur	16	'947	'888	'804	'703	'644	'631	'646	'678	'738	'816	'891	'952	'778
Poona	16	'950	'901	'830	'744	'695	'640	'652	'701	'760	'832	'904	'963	'798
Malegaon	13	'971	'921	'832	'737	'652	'584	'587	'652	'722	'840	'939	'985	'784
Akola	16	'963	'909	'806	'693	'607	'550	'561	'614	'686	'818	'927	'986	'759
Amraoti	13	'972	'913	'809	'699	'601	'544	'558	'611	'680	'828	'937	'994	'763
Buldana	16	'951	'899	'804	'699	'625	'574	'579	'631	'706	'823	'921	'975	'765
Khandwa	16	'968	'921	'822	'711	'616	'546	'552	'613	'696	'834	'942	'991	'767
Hoshangabad	16	1'006	'953	'843	'723	'623	'536	'549	'610	'688	'846	'966	'1'025	'781
Nagpur	22	'964	'905	'796	'679	'580	'522	'531	'584	'652	'804	'934	'992	'746
Sironcha	15-16	'981	'936	'836	'728	'637	'598	'623	'641	'703	'823	'926	'989	'782
Chanda	16	'967	'904	'797	'683	'586	'542	'558	'604	'673	'811	'924	'987	'753
Seoni	17	'991	'928	'812	'706	'596	'514	'516	'576	'654	'825	'958	'1'013	'760
Jubbulpore	21-22	'991	'943	'822	'691	'578	'485	'494	'560	'649	'826	'966	'1'018	'750
Saugor	13	1'004	'942	'823	'702	'577	'487	'495	'564	'653	'836	'955	'1'015	'755
Raipur	15-16	'967	'915	'796	'669	'560	'492	'500	'553	'635	'802	'924	'988	'733
Sambalpur	15-16	'969	'897	'790	'667	'567	'479	'499	'544	'631	'785	'906	'974	'725
Secunderabad	20-21	'939	'886	'806	'717	'635	'620	'636	'667	'716	'804	'895	'956	'774
Bombay	44	'930	'901	'853	'788	'743	'646	'645	'704	'762	'819	'887	'925	'800
Ratnagiri	16	'904	'883	'840	'776	'736	'680	'692	'728	'773	'804	'846	'887	'796
Karwar	13	'894	'882	'846	'788	'749	'723	'740	'760	'794	'808	'835	'875	'808
Mangalore	10	'888	'881	'850	'796	'760	'759	'775	'788	'822	'821	'833	'870	'821
Calicut	6-7	'893	'875	'848	'792	'768	'779	'801	'797	'832	'828	'833	'866	'826
Cochin	18-20	'859	'855	'836	'791	'772	'793	'809	'814	'830	'826	'835	'853	'823
Madura	17-18	'886	'870	'822	'753	'699	'687	'703	'714	'742	'778	'829	'871	'780
Salem	21	'948	'922	'862	'787	'745	'739	'755	'772	'799	'824	'886	'931	'831
Coimbatore	17-18	'907	'877	'828	'762	'731	'729	'748	'754	'777	'809	'853	'898	'804
Mercara	15-16	'933	'904	'866	'812	'795	'808	'827	'833	'853	'854	'885	'917	'857
Bangalore	18	'957	'914	'853	'773	'734	'738	'760	'774	'805	'841	'901	'952	'834
Negapatam	18	'911	'896	'850	'773	'700	'683	'702	'719	'747	'786	'842	'890	'792
Trichinopoly	20-21	'913	'896	'847	'767	'717	'698	'713	'728	'752	'788	'848	'895	'797
Madras	31	'945	'921	'861	'776	'687	'653	'675	'700	'727	'792	'872	'928	'795
Masulipatam	17-18	'950	'910	'843	'757	'646	'593	'610	'641	'683	'779	'880	'941	'769
Kurnool	3-5	'938	'885	'798	'713	'656	'627	'653	'674	'730	'798	'893	'960	'776
Bellary	20	'916	'859	'784	'704	'660	'665	'686	'705	'744	'798	'871	'924	'775
Vizagapatam	21	'962	'920	'846	'757	'654	'561	'562	'603	'666	'787	'899	'964	'765
Gopalpur	13	'957	'902	'809	'712	'617	'506	'501	'553	'631	'781	'890	'959	'735
Bushire	9-10	1'086	1'040	'952	'840	'713	'529	'436	'494	'671	'887	1'019	1'080	'813
Aden	9-11	'971	'944	'890	'821	'745	'630	'585	'616	'712	'859	'935	'979	'868

The following tables give geographical summaries of the pressure variation data according to two groups of divisions employed in the corresponding tables of temperature variation data; *viz.*, for the nineteen divisions for which

variation data were given in the "Geographical summaries" in the annual reports previous to 1891 and for the eleven meteorological provinces in Table II of each monthly review.

TABLE X.—Geographical summary of the pressure variation data of Table II of the monthly reviews of 1891.

METEOROLOGICAL AREA.	Number of Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
North-West Himalaya	7—8	+ '030	— '003	— '010	+ '039	+ '020	+ '012	— '011	+ '014	+ '011	+ '025	+ '033	+ '053	+ '018
Sikkim, Himalaya and Nepal.	2—3	+ '018	+ '022	— '007	+ '008	+ '004	— '013	— '021	+ '015	+ '016	+ '016	+ '003	+ '042	+ '009
Punjab Plains . . .	4	+ '019	+ '028	+ '044	+ '050	+ '031	+ '013	— '045	+ '008	— '007	+ '026	— '018	+ '035	+ '015
Gangetic Plains . . .	8	+ '008	+ '041	+ '041	+ '024	+ '015	+ '009	— '045	+ '010	— '005	+ '046	+ '005	+ '052	+ '017
Western Rajputana . .	4	+ '018	+ '036	+ '025	+ '025	+ '031	+ '048	— '023	+ '010	— '011	+ '015	+ '001	+ '038	+ '018
Eastern Rajputana and Central India.	4	+ '010	+ '025	+ '020	+ '029	+ '020	+ '017	— '046	+ '005	— '029	+ '028	+ '001	+ '042	+ '010
Nerbudda Valley . . .	3	+ '017	+ '030	0	+ '026	+ '010	+ '027	— '031	+ '017	— '025	+ '052	+ '005	+ '050	+ '015
Chota Nagpur . . .	1	+ '007	+ '033	+ '018	+ '030	+ '016	+ '010	— '028	— '007	— '010	+ '048	— '010	+ '035	+ '012
Lower Bengal . . .	5	— '002	+ '039	+ '045	+ '017	+ '021	— '001	— '040	— '014	— '001	+ '049	— '025	+ '031	+ '010
Assam and Cachar . .	3	— '036	+ '007	+ '004	— '016	+ '006	— '021	— '065	— '024	— '022	+ '012	— '022	+ '012	— '014
Orissa and Sambalpur .	3	— '003	+ '027	+ '028	+ '025	+ '012	— '017	— '033	— '014	— '024	+ '056	— '032	+ '032	+ '005
Central Provinces, South, and Berar.	7	+ '005	+ '018	— '015	+ '029	— '003	— '001	— '032	+ '008	— '026	+ '046	— '003	+ '033	+ '005
Konkan . . .	3	+ '010	+ '014	— '010	+ '032	+ '006	+ '052	+ '004	+ '042	+ '027	+ '019	+ '005	+ '019	+ '018
Malabar Coast . . .	1	+ '011	+ '011	— '009	+ '026	— '013	+ '028	+ '018	+ '036	+ '013	— '014	+ '010	+ '006	+ '010
Deccan, Hyderabad and Mysore.	6	+ '001	+ '020	— '008	+ '035	+ '001	+ '022	+ '012	+ '022	+ '002	+ '021	— '003	+ '030	+ '013
Eastern Coast and Carnatic.	3—4	+ '007	+ '018	— '003	+ '032	— '008	— '006	— '006	+ '007	— '004	+ '036	— '006	+ '011	+ '007
Arakan and Pegu . . .	4	— '035	+ '015	— '010	+ '021	+ '008	— '012	— '040	— '016	+ '003	+ '024	— '011	+ '028	— '002
Tenasserim . . .	1	— '039	+ '003	— '023	+ '015	— '016	— '014	— '016	+ '006	+ '003	+ '003	+ '017	+ '025	— '003
Bay Islands . . .	1	— '025	+ '015	— '007	+ '034	+ '012	+ '007	— '001	+ '012	+ '019	+ '019	— '025	+ '013	+ '014
Extra Tropical India .	44—46	+ '010	+ '025	+ '021	+ '025	+ '018	+ '009	— '034	+ '004	— '007	+ '033	— '001	+ '041	+ '012
Tropical India . . .	26—27	— '004	+ '016	— '010	+ '030	— '001	+ '009	— '017	+ '012	— '002	+ '028	— '003	+ '025	+ '007
Whole of India . . .	70—73	+ '005	+ '022	+ '009	+ '027	+ '011	+ '009	— '028	+ '007	— '005	+ '031	— '002	+ '035	+ '010

TABLE XI.—Variation of the mean pressure of each month of 1891 from the normal in the eleven meteorological provinces of India.

METEOROLOGICAL PROVINCES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean variation of year.
Burma Coast and Bay Islands.	— '025	+ '010	— '014	+ '021	+ '012	— '018	— '035	— '012	+ '004	+ '021	— '002	+ '036	0
Burma Inland . . .	— '003	+ '017	— '005	+ '030	+ '020	— '017	— '039	— '009	+ '005	+ '035	+ '011	+ '059	+ '009
Assam . . .	+ '018	+ '018	+ '009	— '006	+ '001	— '014	— '055	— '012	— '006	+ '027	— '022	+ '036	— '002
Bengal and Orissa . . .	— '008	+ '027	+ '029	+ '016	+ '012	— '005	— '047	— '011	— '001	+ '043	— '010	+ '042	+ '007
Gangetic Plain and Chota Nagpur.	0	+ '032	+ '032	+ '021	+ '012	— '002	— '045	0	— '010	+ '043	— '002	+ '050	+ '011
Upper Sub-Himalayas . .	+ '013	+ '032	+ '042	+ '041	+ '028	+ '007	— '050	+ '018	+ '007	+ '039	+ '001	+ '047	+ '019
Indus Valley and North-West Rajputana.	+ '021	+ '032	+ '042	+ '038	+ '045	+ '031	— '032	+ '018	— '002	+ '027	— '007	+ '040	+ '021
East Rajputana, Central India and Guzerat.	+ '016	+ '030	+ '020	+ '032	+ '027	+ '036	— '033	+ '021	— '015	+ '034	+ '013	+ '047	+ '019
Deccan . . .	+ '014	+ '025	+ '003	+ '037	+ '015	+ '034	— '022	+ '020	— '016	+ '050	+ '015	+ '050	+ '019
West Coast . . .	+ '010	+ '007	— '012	+ '022	— '005	+ '036	— '002	+ '040	+ '009	+ '008	+ '016	+ '022	+ '013
South India . . .	+ '002	+ '010	— '012	+ '023	— '002	+ '005	— '005	+ '028	+ '008	+ '031	+ '010	+ '027	+ '010

The following gives a summary of the most important abnormal features of the pressure distribution of the year 1891 :—

I.—COLD WEATHER PERIOD.—The mean pressure for the whole Indian area was above the normal in this period, the excess increasing from '005" in January to '022" in

February. Locally pressure was in excess in North-Western and Central India, and in defect in North-Eastern India and Burma in both months. It was largely in defect in Southern India in February.

During these two months excessive snow fell in the Western Himalayas and Afghan Mountains, and weather

was very unsettled and stormy in North-Western India with frequent rain. Weather was, on the other hand, finer and drier than usual in Southern India, and temperature was above the normal in that area, as it was largely in defect in Northern and Central India.

As a rule, when pressure is considerably above the normal in January and February, weather is more stormy than usual in Northern India and the cold weather rainfall above the normal.

The most noteworthy examples of wet and stormy cold weather seasons in Northern India during the past 15 years are the years 1877, 1878, 1883, 1885 and 1889. The following gives the mean pressure variations for the months of December, January and February in each of these seasons:—

MONTHS.	VARIATION OF MEAN PRESSURE OF THE INDIAN LAND AREA FROM NORMAL.					
	1876-77.	1877-78	1882-83.	1885-86.	1888-89.	1890-91.
	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
December	+ '026	— '015	— '010	— '008	+ '026	— '004
January	+ '073	+ '030	— '005	— '011	+ '017	+ '005
February	+ '051	+ '033	— '007	+ '012	+ '024	+ '022
Mean of period	+ '050	+ '016	— '007	— '002	+ '022	+ '008

The increased pressure in the Indian area during such cold weather periods is to a large extent a result of the peculiar weather conditions, and not the chief determining cause. In virtue of the contrast of conditions that usually obtain between Northern India and the Peninsula, increased pressure, decreased temperature and heavier rainfall in the cold weather in Northern India almost invariably accompany decreased pressure, increased temperature, and less rainfall in the greater part of the Peninsula, and more especially in Southern India. These combinations of conditions are hence related and due to some more general actions determining the distribution of the winter rains in Northern India.

Reasons have been given in recent annual reports for the assumption that the cold weather rainfall is mainly due to cyclonic storms of high elevation, and more especially to those which give rise to secondary depressions in the North Punjab.

An examination of the pressure data of the hill stations in Northern India and the neighbouring plain stations shows that there is a considerable deficiency of pressure at the hill stations as compared with the plain stations in years of excessive winter rainfall and a largish excess in years of very deficient rainfall, and that these features begin to be exhibited at the end of the period of the south-west monsoon rains, and are hence peculiarities that are impress-

ed upon the meteorological conditions in the readjustment of pressure that accompanies the retreat of the south-west monsoon, and in part at least determine the character of that retreat and the distribution of the rainfall accompanying it. The following gives data for January and February 1891, and for the preceding three months illustrating this statement:—

MONTH.	VERTICAL PRESSURE ANOMALY.			
	Leh and Lahore.	Murree and Peshawar.	Darjeeling and Dhubri.	Quetta and Jacobabad.
October	"	"	"	"
November	— '014	— '017	+ '007	+ '012
December	— '002	— '026	— '031	'035
January	— '038	— '033	— '016	— '066
February	+ '012	— '030	+ '032	— '034
Mean of period	— '022	— '035	— '004	— '038

The preceding tables show that there was a considerable deficiency of pressure at the hill stations as compared with the neighbouring plain stations. This deficiency was most marked in the cases of the stations of Murree and Quetta, where it averaged nearly '04" for the whole period.

II.—Hot weather period.—The following were the chief features of the pressure conditions of this period:—

1st.—Pressure was in general excess over the Indian area during the period. The following gives the mean variations of pressure of the Indian land area from the normal for each month:—

MONTH.	MEAN VARIATION OF PRESSURE FROM THE NORMAL OF		
	Whole of India.	Extra-tropical India.	Tropical India.
March	+ '015	+ '021	— '010
April	+ '028	+ '025	+ '030
May	+ '015	+ '018	— '001
Mean of period	+ '019	+ '021	+ '006

2nd.—This feature extended to Port Blair, Aden and Bushire, and was hence almost certainly a feature of the whole Indian monsoon area, and perhaps of Southern Asia.

STATION.	MEAN VARIATION OF PRESSURE FROM THE NORMAL IN			Mean of period.
	March 1891.	April 1891.	May 1891.	
Port Blair	"	"	"	"
Aden	— '007	+ '052	+ '012	+ '019
	— '012	+ '018	+ '009	+ '005

3rd.—Pressure was locally in excess in North-western and Central India, and in defect in North-

Eastern India, Burma and the Peninsula. The excess was greatest throughout in the Indus Valley, and the deficiency greatest in South Madras.

The following gives data for two stations in each of these two areas at which the variations were greatest:—

STATION.	MEAN PRESSURE ANOMALY OF THE MONTH OF			Mean anomaly of whole period.
	March 1891.	April 1891.	May 1891.	
Jacobabad	+ '050	+ '026	+ '044	+ '040
Peshawar	+ '038	+ '040	+ '050	+ '043
Bangalore	— '042	— '015	— '025	— '027
Madura	— '029	— '004	— '030	— '018

The local pressure conditions (and more especially the contrast between the excessive pressure in North-Western India and the deficient pressure in Southern India) were identical in general character with the conditions of the two preceding months, and were somewhat more pronounced.

4th.—The relations between the pressure variations at the hill stations and the neighbouring plain stations are fully shown by the following data:—

MONTH.	Quetta Jacobabad.	Leh Lahore.	Murree Peshawar.	Ranikhet Lucknow.	Darjeeling Dhubri.	Mount Abu, Deesa.	Pachmarhi Hoshangabad.	Wellington Cochin.
March	— '070	— '107	— '056	— '047	— '034	— '027	— '006	+ '012
April	0	— '008	— '028	— '008	+ '017	— '010	+ '014	+ '014
May	0	— '024	— '024	— '004	— '003	+ '011	+ '012	+ '025
Mean of period .	— '023	— '046	— '036	— '020	— '007	— '009	+ '007	+ '017

The data of the preceding table show that pressure was during this period, as during the preceding cold weather period, very considerably in defect at the hill stations as compared with the neighbouring plain stations; and that the deficiency was greatest at Leh, Murree and Quetta. There was, on the other hand, a slight local excess of pressure at the hill station in South India, and there was hence an abnormal pressure gradient in the middle atmospheric strata between Southern and Northern India, tending to give increased strength to the south-westerly or westerly winds in these strata.

III.—South-west monsoon period.—The pressure conditions of the south-west monsoon were very strongly marked. The following gives a summary of the more striking and noteworthy features:—

1st.—The pressure conditions of June were very similar to those of May. Pressure was in general excess (+ '014") in the Indian area. There was a large local excess of pressure on the

North-West Frontier and in Kathiawar and North Bombay, and a moderate deficiency in North-Eastern India. This contrast between the pressure conditions of North-Eastern and North-Western India had obtained from the month of April, and reached its maximum in June. The following gives data of the largest pressure anomalies in these two areas of large opposite variations:—

AREA.	STATION.	Mean pressure anomaly of month, Inch.
North-Eastern India and Burma area of large local deficiency of pressure.	Moulmein	— '036
	Rangoon	— '041
	Thayetmyo	— '031
	Sibsagar	— '035
	Patna	— '035
	Berhampur	— '032
	Peshawar	+ '041
North-Western and Western India area of large local excess of pressure.	Rawalpindi	+ '006
	Deesa	+ '049
	Surat	+ '065
	Khandwa	+ '044
	Bombay	+ '051
	Poona	+ '051
	Ratnagiri	+ '041
	Sholapur	+ '040

This great excess of pressure in Western India accompanied protracted delay in the establishment of the monsoon currents. They did not set in on the West Coast until nearly the end of the month.

2nd.—The pressure conditions of July were mainly due to the prolonged and excessive hot weather conditions in the interior during the month of June and the greater part of July. Pressure was '031" in defect over the Indian area. The local pressure anomalies in July were much smaller than in June. Pressure was in moderate local excess in the south of the Peninsula and was in slight to moderate local defect in Northern India. The area of local deficient pressure in Burma and North-Eastern India had contracted considerably, and was now confined to Assam and Cachar whilst an important local low pressure area had formed in the East and South Punjab and two small areas in the Gangetic plain, the centres of which were near Allahabad and Patna.

3rd.—The pressure conditions of August were very similar to those of June. Pressure was in slight excess in the Indian area. There was a moderately large excess in North-Western and Western India and a moderate deficiency in North-Eastern India. The monsoon

rains prevailed steadily throughout the month, but it was not until nearly the end of the month that they began to modify the distribution of pressure.

4th.—The chief features of the pressure distribution of September were—

(a) A considerable deficiency in the area defined by the stations of Allahabad, Jhansi, Hoshangabad, Nagpur and Raipur,

(b) A moderate excess in the Central Deccan, which was most marked at Bellary.

These variations were associated with excessive rainfall in the area of very deficient pressure and with general moderate to heavy rain over nearly the whole of Northern and Central India (except West Rajputana, Kathiawar, and Cutch) and with deficient rain in the Peninsula. The rains continued without a break throughout August and September, and ceased suddenly at the end of the first week of October over the whole of Northern and Central India.

IV.—*The retreating south-west monsoon period.*—The pressure variations and anomalies of the retreating south-west monsoon period were less broadly marked than those of the south-west monsoon proper, but were equally important in their relations to the distribution of the rainfall and tracks of the storms of the period. The following is a brief statement of the more important features:—

The cessation of the rains (which had been steadier and heavier than usual) in Northern India was followed by an unusually rapid increase of pressure, which was, relatively to the general condition, greatest in the area of heaviest rainfall during the month of September, *i.e.*, in the Central Provinces and Central India. Hence the mean pressure of the month was considerably in excess (+035") in the Indian area, and pressure was locally considerably in excess in Berar, the Central Provinces and Central India. The following gives data:—

PROVINCE.	STATION.	Pressure anomaly (positive), October.
		Inch.
BERAR	Akola	+028
CENTRAL PROVINCES	Nagpur	+025
	Raipur	+025
	Khandwa	+022
	Jubbulpore	+021

Pressure was, on the other hand, in local defect in Tenasserim, the south of the Bay, Southern India and

Ceylon. The deficiency was greatest at the following stations in Malabar, South Madras and Ceylon:—

AREA.	STATION.	Pressure anomaly (negative).
		Inch.
MALABAR	Calicut	—052
	Cochin	—042
CEYLON	Colombo	—042
TENASSERIM	Mergui	—038

The south-west monsoon current retreated almost abruptly from the north and centre of the Bay at the beginning of the second week of October, and was deflected in the south of the Bay and directed towards Southern India, to which it gave favorable rain during the second and third weeks of the month. A break followed in the last week of the month during which pressure increased rapidly. These changes very largely modified the pressure anomalies, and introduced conditions which were fairly persistent throughout the month of November. The following gives a summary of the larger and more important variations of pressure from the normal in November:—

(a) The mean pressure of the Indian area in November was nearly identical with the normal.

(b) Pressure was in moderate local excess in the Deccan, Southern India and Ceylon. The following gives data for a few stations:—

AREA.	STATION.	Pressure anomaly, November 1891 (positive).
		Inch.
CENTRAL PROVINCES	Khandwa	+029
	Sholapur	+031
DECCAN	Bellary	+023
	Poona	+024
MYSORE	Bangalore	+019
SOUTH MADRAS	Madras	+006
CEYLON	Colombo	+025

(c) Pressure was, on the other hand, in local defect in North-Eastern India and Burma—

AREA.	STATION.	Pressure anomaly, November 1891. (negative).
		Inch.
ANDAMANS	Port Blair	—029
BURMA COAST	Diamond Island	—019
	Akyab	—017
BENGAL COAST	False Point	—033
	Saugor Island	—029

The pressure conditions were more favourable for the development of cyclonic storms in the Bay in November than in October. Two storms appeared in the Bay: they

advanced across the area of deficient pressure, and avoided the area of local excess pressure in the Peninsula. These storms gave heavy and unusual rain in Bengal and Burma. A rapid increase of pressure occurred in December, and the mean pressure of the Indian area was '041" above the normal. The local anomalies were small in amount and of little importance, except a moderate local excess in the Central Deccan and a well marked local deficiency in Southern India, associated with heavy rain in South Madras.

The pressure anomalies of December were hence similar to those of October, and accompanied a similar distribution of rainfall.

The most important feature of this period was the relation between the variations at the hill stations and the neighbouring plain stations. The following table gives data:—

MONTH.	VERTICAL PRESSURE ANOMALY.						
	Quetta and Jacobabad.	Leh and Lahore.	Kailong and Lahore.	Murree and Peshawar.	Simla and Ludhiana.	Ranikhet and Lucknow.	Wellington and Cochin.
September . .	+ '042	+ '023	+ '023	+ '016	+ '010	+ '033	+ '023
October . . .	+ '029	- '009	- '010	+ '006	P	- '008	+ '051
November . .	+ '054	+ '113	+ '056	+ '054	+ '037	+ '016	+ '018
December . .	+ '029	+ '060	- '005 ²	+ '019	+ '015	+ '010	+ '044
Mean of period .	+ '039	+ '047	+ '016	+ '024	+ '021	+ '013	+ '034

The vertical anomaly is obtained by taking the difference of the actual pressure variations at the high level and low-level stations; when the difference is positive, it represents an excess of pressure at the higher station as compared with the lower station, and hence a departure from the normal vertical pressure relations of the period to that extent, and when negative a relative deficiency of pressure at the higher strata.

The preceding data establish—

- (1) That throughout the whole period there was a persistent excess of pressure at the higher level stations.
- (2) That this excess of pressure was greatest in amount in November.
- (3) That the excess was greatest in the case of the stations of Leh and Quetta—stations most representative of the pressure conditions of Central India, and hence suggesting that the excess was almost certainly most marked in the great Central Asian plateau, and hence, as a further consequence, that it was mainly a phenomenon of the middle and higher atmospheric strata.
- (4) The excess was nearly as large in the case of the Southern Indian pair of stations (Cochin

and Wellington) as in the case of Leh and Lahore, and of Quetta and Jacobabad. This appears to indicate that it was a general feature of the middle and perhaps the higher atmospheric strata over the whole of India and the adjacent districts of Central Asia, and was hence not due to local conditions in either Northern or Southern India.

- (5) The excess was even more marked than the relative deficiency in the early cold weather months of the preceding winter. The rainfall of the one season was as largely in excess as that of the other was markedly in defect.

The following gives a statement of the cyclones and more important cyclonic storms which affected the Indian area during the south-west monsoon period—May to November 1891—drawn up in the form adopted in the annual reports of the meteorology of India for the years 1886-90. The tracks of these storms are laid down in Plate IV.

No.	Year.	Month.	Date.	Greatest observed barometric depression.	Character of storm.	Details of Storms.
1	1891	May	19th to 27th.	'25"	Feeble depression.	This was a very shallow depression, which formed in the extreme south-west of the Bay in front of the first temporary advance of the south-west monsoon winds on the 18th and 19th. It marched north-eastwards towards the head of the Bay at an average rate of 4 miles an hour, and it broke up, on the 25th and 26th, off the coast of Ganjam. It was a very feeble disturbance and never passed beyond the early stages of cyclonic formation. It however initiated the south-west monsoon in the Bay Islands and Lower Burma on the 22nd and 23rd.
2	1891	July	24th to 30th.	'4"	Moderate cyclonic storm.	This storm was generated near the mouth of the Hooghly on the afternoon of the 21st. The centre was a little to the north of Saugor Island at 8 A.M. of the 25th. It marched in a west-north-west direction during the next three days. The centre at 8 A.M. of the 26th was to the west-north-west of Chaibassa, and at 8 A.M. of the 27th was probably in Lat. 23° N. and Long. 81½° E., and at the same hour of the 28th

No.	Year.	Month.	Date.	Greatest observed barometric depression.	Character of storm.	Details of storm.	No.	Year.	Month.	Date.	Greatest observed barometric depression.	Character of storm.	Details of storm.
3	1891	August	31st July to 5th August.	'35"	Moderate cyclonic storm.	<p>a little to the south-west of Jhansi. Its rate of motion during this period had increased from 8 to 11 miles an hour. The storm was now commencing to fill up, but continued to advance in the same direction, and the centre at 8 A.M. of the 29th was probably in Lat. $26\frac{1}{2}^{\circ}$ N. and Long. 74° E. The storm advanced into Upper Sind on the morning of the 30th, where it filled up during the day. It gave a general burst of rain to the whole of Northern and Central India and established the monsoon in Rajputana and the Punjab. Winds of force 8 to 9 were experienced by ships at the head of the Bay on the 25th and 26th.</p> <p>This storm formed in the north of the Bay whilst the previous storm was passing through Rajputana. It began to move in a west by north direction across the head of the Bay on the evening of the 1st, and the centre was in Lat. $20\frac{1}{2}^{\circ}$ N. and Long. $89\frac{1}{2}^{\circ}$ E. at 8 A.M. of the 2nd. The centre crossed the Orissa Coast between Halasore and False Point about 7 P.M. of the 2nd and marched during the night on a westerly course. It had steadily intensified during the preceding 36 hours, and the depression at the centre when crossing the coast was upwards of three-tenths of an inch. The storm continued to drift on a west by north track, and the centre at 8 A.M. of the 3rd was in Lat. 21° N. and Long. 86° E., and in Lat. 23° N. and Long. $82\frac{1}{2}^{\circ}$ E. at the same hour of the 4th. It was now filling up and of little importance. It recurved slightly on the 4th and filled up in Baghelkhand on the morning of the 5th. The storm gave a moderate burst of rain to Bengal, Chota Nagpur and Behar. Very squally weather and winds of force 8 were experienced in the north of the Bay.</p> <p>This was a very shallow depression which form-</p>	5	1891	September.	5th to the 10th.	'2"	Feeble cyclonic storm.	<p>ed in the north-west angle of the Bay on the 1st and 2nd. It passed inland on the night of the 2nd, and was in Chota Nagpur on the 3rd, and the southern and central districts of the North-Western Provinces on the 4th, where it filled up during the next 24 hours.</p> <p>This storm was generated in the north-west corner of the Bay on the 4th, whilst the previous depression was breaking up. It developed on the 5th and began to advance westward on the afternoon of that day towards the North Orissa Coast which it crossed early on the morning of the 6th. The centre was probably in Lat. $21\frac{1}{2}^{\circ}$ N. and Long. $85\frac{1}{2}^{\circ}$ E. at 8 A.M. of the 6th. It marched rather rapidly during the next 24 hours and was in Chota Nagpur and the eastern districts of the Central Provinces on the morning of the 7th. It then advanced slowly westward into Bundelkhand, and the centre was in about Lat. $24\frac{1}{2}^{\circ}$ N. and Long. $79\frac{1}{2}^{\circ}$ E. on the morning of the 8th, to the south-west of Jhansi on the 9th, and nearly midway between Jhansi and Jeypur on the morning of the 10th. It filled up during the next 24 hours. Winds of force 8 were experienced in the centre and north of the Bay on the 5th and 6th during the storm.</p>
4	1891	September.	1st to the 5th.	'11"	Feeble depression.		6	1891	September.	11th to the 16th.	'1"	Cyclonic storm of small intensity.	<p>This storm formed on the 9th and 10th in the north-west angle of the Bay. The centre crossed the Orissa Coast on the morning of the 12th, and advanced through the eastern districts of the Central Provinces on the 13th and Baghelkhand on the 14th, into the south-eastern districts of the North-Western Provinces on the 15th, and thence into Oudh on the 16th, where it filled up during the day. It was throughout an extensive but shallow depression. Winds of force 6 to 8 were experienced on the 11th and 12th at the head of the Bay.</p>

No.	Year.	Month.	Date.	Greatest observed barometric depression.	Character of storm.	Details of storm.	No.	Year.	Month.	Date.	Greatest observed barometric depression.	Character of storm.	Details of storm.
7	1891	September	17th to the 19th.	'09"	Feeble disturbance.	This storm formed off the Orissa and Ganjam coasts on the 17th. The centre crossed the Ganjam coast shortly after noon on the 18th and advanced rapidly westwards into the western districts of the Central Provinces on the morning of the 19th, where it broke up during the next 24 hours. It was a very feeble disturbance.							record. The storm gave very heavy rain to the districts through which it passed. Winds of force 9 were experienced in the north and centre of the Bay on the 21st and 22nd during the storm.
8	1891	September and October.	19th September to the 3rd October.	'3"	Moderate cyclonic storm.	This remarkable storm originated outside the Indian area, probably in the Gulf of Siam and marched westwards. It crossed Tenasserim on the 19th and passed out into the north of the Andaman Sea on the morning of the 20th. It then travelled rather rapidly across the Bay of Bengal on a west-north-west track as a shallow depression and crossed the Orissa coast south of False Point at 5 P.M. on the 22nd. It thence advanced into the western districts of the Central Provinces on a westerly course at an average rate of seven miles an hour. The centre was probably in Lat. $21\frac{1}{2}^{\circ}$ N. and Long. $80\frac{1}{2}^{\circ}$ E. at 8 A.M. of the 24th. It remained almost stationary during the next 48 hours, but developed considerably and recurved to north and north-east. The centre of the storm was a little to the west of Nagpur at 8 A.M. of the 25th, midway between Amraoti and Nagpur on the morning of the 26th and a little to the east of Pachmarhi on the morning of the 27th. The depression now began to fill up but very slowly. The centre at 8 A.M. of the 28th was nearly midway between Jubbulpore and Saugor, and at 8 A.M. of the 29th was near Sutna. It now recurved back to north for 48 hours and was between Lucknow and Cawnpore on the 1st of October. It drifted slowly eastward during the next 48 hours into the eastern districts of the North-Western Provinces and filled up completely on the 3rd and 4th. It had hence an existence of a fortnight in the Indian area and is one of the longest-lived storms on	9	1891	October	20th to the 23rd.	...	Shallow depression.	This was probably a small subsidiary depression which formed on the 21st and 22nd off the Coromandel Coast and marched north-westwards. It crossed the coast between Madras and Cuddalore about 8 A.M. of the 23rd. It was a very feeble disturbance and broke up during the day without advancing far into the interior. It gave heavy rain to South Madras on the 22nd and 23rd.
							10	1891	November	2nd to the 3rd.	'60"	Small storm of great intensity.	This storm was generated further south than usual between the Laccadives and Maldives and the Travancore coast on the 1st and 2nd. It advanced westwards and the centre passed a little to the north of Minicoy about 1-30 A.M. of the 3rd. Nothing definite known of the further history of the storm. The storm gave a deluge of rain to Minicoy and squally weather in the south-east of the Arabian Sea. No track is assigned to this storm in the storm track chart.
							11	1891	October and November.	30th October to the 7th November.	'80"	Very severe cyclone.	This was a very remarkable storm. It originated in the Gulf of Siam and advanced westwards across the Malayan Peninsula, which it crossed at the Isthmus of Kra between Lat. $9\frac{1}{2}^{\circ}$ and $10\frac{1}{2}^{\circ}$ N. on the night of the 31st October. It entered the Andaman Sea early on the morning of the 1st and passed over Port Blair between 2 A.M. and 3 A.M. of the 2nd. It continued to advance in the same direction as hitherto across the Bay on the 2nd and the centre was probably in Lat. 14° N. and Long. $86\frac{1}{2}^{\circ}$ E. at 8 A.M. of the 3rd. It then began to recurve and march in a north-westerly direction. The centre was probably in Lat. $16\frac{1}{2}^{\circ}$ N. and Long. $85\frac{1}{2}^{\circ}$ E. on the morning of the

No.	Year.	Month.	Date.	Greatest observed barometric depression.	Character of storm.	Details of storm.
12	1891	November.	19th to the 24th	1'50(?)	Cyclone of great intensity.	<p>4th. It recurved rapidly through north-north-west and north on the 4th and on the morning of the 5th it was moving in a north-easterly direction parallel to the coast. The calm centre passed over False Point between 4 and 5 P.M. of the 5th. The storm continued to recurve during the evening of the 5th and advanced in a north-east by east direction across the north-west angle of the Bay on the early morning of the 6th. The centre crossed the Bengal coast to the east of Saugor Island at 8 A.M. of the 6th, and advanced across South Bengal to the hills of East Bengal and Assam which broke it up on the 7th. Hurricane winds were experienced by many vessels in the Bay during the storm. The storm gave a deluge of rain to the Orissa coast and moderate rain to Burma and Bengal.</p> <p>This storm formed in the central area of the Bay between the Andamans and the Coromandel Coast on the 18th and 19th. It intensified considerably on the 20th and 21st, and began to advance in a north-easterly direction and on the morning of the 22nd it was a well-defined storm of great intensity. The storm advanced north-eastwards about 80 or 100 miles west of Diamond Island early on the morning of the 23rd, and crossed the Arakan coast near Sandoway about noon. It filled up very rapidly during the night of the 23rd and morning of the 24th in Central Burma. It gave a moderately heavy burst of rain to the whole of Burma. Hurricane winds of force 12 were experienced in the inner storm area.</p>

The following gives a brief statement of the tracks of the two most important land-formed storms during the

south-west monsoon period of 1891. The track of the first storm is also charted on Plate IV :—

No.	Year.	Month.	Date.	Greatest observed barometric depression.	Character of storm.	Details of storm.
1	1891	August	11th to the 16th	'25"	Moderate cyclonic land-formed storm.	<p>This was generated during a heavy burst of rainfall in Central Bengal on the 10th and 11th. The centre was near Jessore on the morning of the 12th, where the barometric depression was '25" in amount. The storm remained almost unchanged in position during the next 24 hours, but began to drift westward on the night of the 13th, and the centre was near Ranchi at 8 A.M. of the 14th. The depression was now filling up. It, however, continued to march westwards through Chota Nagpur on the 14th, and was in the south-eastern districts of the North-Western Provinces on the morning of the 15th with its centre a little south of Allahabad. It advanced very slowly during the afternoon and night of the 15th, and the centre was between Lucknow and Allahabad at 8 A.M. of the 16th. It was now a very slight depression and filled up in Rohilkhand during the next 24 hours. It gave very heavy rainfall to Bengal, Behar, Chota Nagpur and the North-Western Provinces.</p>
2	1891	August	19th to the 23rd	'1"	Shallow depression.	<p>Like the previous storm this was a land-formed depression. It originated in the eastern districts of the North-Western Provinces on the 18th and 19th, and drifted very slowly westwards during the next three days to the neighbourhood of Nowgong, where it broke up on the afternoon of the 23rd. The disturbance was remarkable for the heavy rainfall which accompanied it. (As this storm was almost stationary, its path is not given in the storm track chart of the year.)</p>

Winds.

The mean direction of the wind and the mean diurnal movement of the air as measured by an anemometer are

given for every station in Table II in each monthly review. The normal values are also given for the sake of ready

comparison. The normal data of these elements are also given in a collected form in Tables XX and XXI in the annual report for 1890. The mean 8 A.M. wind directions for each month are laid down in the first chart in each monthly review. They are calculated in the usual manner from the 8 A.M. wind data given in Table I in each monthly review. As a general rule the mean 8 A.M. wind directions differ little from the mean wind directions (calculated from the 10 and 16 hours wind data), but in some cases and at certain seasons of the year they differ very considerably. The chief features of the air movement over India have been described in the preceding monthly reviews. The following gives a summary of the most important features:—

I.—In the months of January, February and March winds were, on the whole, steadier and stronger than usual in the Gangetic plain. The only important feature was the unusual strength of the winds at the hill stations. The following gives three examples for stations at which the anemometers are in open and well exposed positions:—

STATION.	MEAN DAILY AIR MOVEMENT IN		
	January.	February.	March.
	Miles.	Miles.	Miles.
Murree	Actual 291	234	201
	Normal 199	196	214
Chakrata	Actual 129	148	156
	Normal 111	126	138
Mount Abu	Actual 103	154	157
	Normal 116	133	161

The increased strength of the winds at the hill stations was due to the unusual stormy weather of the period.

The mean air movement of the month of February was approximately normal in general character, but was probably slightly stronger than usual not only in the plains of India but in the neighbouring seas, more especially the Arabian Sea.

Winds were extremely unsteady and irregular in direction in Bengal in March in consequence of the continuance of cool northerly winds during the greater part of the month. This was due to the fact that the hot weather was at least a month later in Northern India in consequence of the frequent and heavy precipitation in Northern India and the Himalaya and Afghan mountain regions.

II.—During the hot weather months of April and May winds were steadier and stronger than usual, and, as usually occurs under these conditions, the southerly winds in Bengal (except at the coast stations) had more westing or less easting than usual. The most important feature of the air movement was the unusual strength of the northerly element in the north-westerly winds of the period in West Rajputana, Kathiawar and the Bombay Coast districts, and

to a less extent in the West Deccan. The following gives data for six stations:—

STATION.	APRIL.		MAY.	
	Mean wind direction, April 1891.	Normal wind direction, April.	Mean wind direction, May 1891.	Normal wind direction, May.
Deesa	†	N 89° W	N 29° W	S 55° W
Bombay	N 67° W	N 52° W	N 70° W	N 82° W
Ratnagiri	N 58° W	N 76° W	N 34° W	N 73° W
Karwar	N 74° W	N 84° W	N 59° W	N 69° W
Akola	N 45° W	N 48° W	N 48° W	N 51° W
Sholapur	N 49° W	N 18° E	N 57° W	N 41° W

III.—The chief features of the air movement during the months of June and July, when the Bombay or Arabian Sea monsoon current was not only late in being established but was for some time after its establishment feeble, are of much interest. The following were the chief peculiarities of the air movement in India during the month of June:—

1st.—The Bay of Bengal current was more strongly directed than usual towards Tenasserim and Burma during the month. This was shown by the abnormal strength of the westerly element in the winds.

2nd.—Winds were stronger at the head of the Bay than usual. This was, however, mainly due to the prevalence throughout the month of strongly marked hot weather conditions. Hence dry westerly land winds obtained throughout the month in the Gangetic plain, and, as usual under these conditions, the southerly winds in South and Central Bengal, had a very strongly marked westerly element, and were hence directed to East Bengal.

3rd.—Winds were much lighter than usual on the Bombay coast, due to the delay in the establishment of the normal monsoon winds of the month.

4th.—Abnormally strong westerly winds prevailed during the month in Rajputana, the Central Provinces and the Deccan. These winds were, like the winds in the Gangetic plain, dry land winds.

The south-west monsoon winds advanced slowly into the interior during the month of July, and were finally established in Upper India in the last week of the month and the first week of August. The following were the chief features of the mean winds or air motion of that month:—

1st.—The monsoon current in the Bay was stronger than usual. A larger portion of the current was deflected to Tenasserim and Lower Burma than usual, and hence winds in the east and centre of the Bay were considerably stronger and more westerly than usual.

2nd.—Winds were slightly stronger than usual in Bengal, and were strongly directed to East Bengal and Assam, as shown by the abnormal westing of the winds in South and Central Bengal.

3rd.—Winds were, on the whole, normal in the North-Western Provinces, but were very variable and irregular in the Punjab.

4th.—Winds were slightly above their normal strength on the Bombay coast, and were, on the whole, more directly from the west than usual.

5th.—Very strong winds blew across the Deccan, Berar, Central Provinces, and probably Central India, thus apparently indicating that less of the current was directed towards Upper India than usual and a larger portion across the Peninsula. The increased strength of the winds blowing across the Deccan was one of the most remarkable features of the south-west monsoon period of 1891.

The chief features of the Bay of Bengal monsoon current in August and September were—

1st.—It was stronger than usual.

2nd.—In the centre of the Bay it had a stronger set to Tenasserim and Lower Burma than usual, shown not only by the increased westing of the south-west winds, but by the effect on the rainfall distribution.

3rd.—At the head of the Bay it had a stronger set to the Gangetic plain than usual, shown by the strongly marked easterly component of the winds in Bengal, Chota Nagpur and Bihar.

4th.—The current had its full extension to the North-East Punjab until the beginning of October, and there was no marked break in the rains or in the extension of the current to the Punjab during the months of August or September. Hence the area of most unsteady and variable winds, the mean normal position of which in September is the Gangetic Doab, was in the south-east of the Punjab in September 1891 or much further west than usual.

The chief features of the Arabian Sea or Bombay monsoon current in August and September 1891 were—

1st.—The current, as measured by the strength of the winds at the west coast stations, was slightly stronger than usual.

2nd.—This current gave rise to much stronger winds than usual across the Deccan, Berar and the Central Provinces. This was in fact one of

the most striking features, and data are given in the following table in illustration :—

	AUGUST.		SEPTEMBER.	
	Mean daily air movement.	Excess expressed as percentage.	Mean daily air movement.	Excess expressed as percentage.
Akola	250	+ 31	262	+ 88
Nagpur	218	+ 51	236	+ 100
Belgaum	599	+ 21	453	+ 13
Secunderabad	316	+ 28	233	+ 18
Bellary	326	+ 25	280	+ 30
Trichinopoly	263	+ 33	165	— 1
Madras	200	+ 15	181	— 12

The increased strength of the winds was very marked during this period over the whole of the interior or table-land of the Peninsula. In the Central Provinces and Berar the air movement in September was exceptionally strong in consequence of this general feature and of the unusual number of depressions which passed through that area and gave frequent strong to violent cyclonic winds.

3rd.—Winds were slightly less southerly or more westerly than usual in Kathiawar, West Rajputana and Central India, thus showing that the current was less influential in these areas than usual, and was to some extent deflected away from them. The following gives examples :—

	AUGUST.		SEPTEMBER.	
	Mean wind direction, August 1891.	Normal wind direction, August.	Mean wind direction, September 1891.	Normal wind direction, September.
Deesa	N 36° W	S 47° W	S 85° W	S 65° W
Ajmere	N 87° W	S 70° W	N 62° W	N 80° W
Mount Abu	S 56° W	S 58° W	N 80° W	S 67° W
Karachi	S 75° W	S 63° W	N 83° W	S 62° W

IV.—The air movement accompanying the retreat of the south-west monsoon currents was characterized by very abnormal features, of which the following are the most important :—

1st.—Southerly humid winds withdrew from the Gangetic plain and Bengal at the end of the first week and beginning of the second week of October and were replaced by westerly or north-westerly winds. Similarly, in Burma, the southerly monsoon winds, which usually prevail until the end of October or middle of November gave way at the end of the second week of October, and light northerly winds set in. North-east winds were hence established over the whole of the north and east and centre of the Bay from two to three weeks earlier than usual, and

prevailed with unusual steadiness throughout the month. Hence also north-east winds were abnormally steady and somewhat stronger than usual on the Coromandel Coast, and, as occurs under such conditions, the easterly element in the winds was stronger than usual:—

	MEAN WIND DIRECTION.		MEAN STEADINESS.	
	Actual, October 1891.	Normal, October	Actual percentage.	Normal percentage.
Madras	N 55° E	N 35° E	58	10
Bellary	S 81° E	N 24° E	48	14
Salem	N 72° E	S 52° W	63	39

2nd.—The chief abnormal features in the air motion in the month of November were due to the abnormal pressure conditions in the centre of the Bay and were as follows:—

(a) Winds were more northerly and less easterly than usual in the Central Provinces and East Deccan. The northerly deflection exceeded 30° at several stations in that area.

(b) The same deflection, but to an even larger extent, was shown at stations on the Circars and Coromandel coasts. The northerly deflection, for example, slightly exceeded 40° at Madras and Vizagapatam.

3rd.—The humid or south-west monsoon winds finally retreated from the Bay in the fourth week of December, about the normal date. During the first three weeks of the month the abnormal conditions of pressure were similar to those of November, and hence the chief features of the air motion in December were identical in character with those of November in that area. These were:—

(a) Winds were much below their normal strength on the Madras Coast.

(b) Winds in the Central Provinces, East Deccan, and the Madras Coast districts were more northerly and less easterly than usual. The northerly deflection was less marked in December than in November.

(c) The same abnormal conditions gave increased easting to the winds on the opposite coast of the Bay. Thus at Diamond Island the mean direction was N. 81° E., the normal being N. 59° E., and at Port Blair it was S. 29° E., the normal being N. 63° E. The persistent existence of the depression to the west of the Andamans hence very largely modified the air motion in the Bay and the Peninsula during the month. This result was shown during the whole month to a greater or less extent according to the varying conditions in the Bay, and was not due solely to the cyclonic storms of the month.

Humidity.

The following tables give variation data of aqueous vapour pressure and humidity:—

1st.—For the nineteen meteorological areas adopted in

the geographical summaries of meteorological data in the annual reports previous to 1891.

2nd.—For the eleven meteorological provinces of the Empire

TABLE XII.—Geographical Summary of the aqueous vapour pressure data of Table II in the 1891 monthly weather reviews.

METEOROLOGICAL DISTRICT.	Number of Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year 1891.
North-West Himalaya	7-8	+ '005	— '001	— '009	— '002	+ '016	— '064	— '066	— '009	+ '039	+ '016	+ '021	+ '011	— '004
Sikkim Himalaya and Nepal.	2-3	+ '011	— '004	— '027	+ '001	+ '001	— '005	+ '012	+ '007	+ '027	— '040	— '012	— '002	— '003
Punjab Plains	4	+ '040	— '001	— '006	+ '053	+ '007	— '131	— '169	— '041	+ '026	+ '036	+ '052	— '005	— '012
Gangetic Plains . . .	7-8	+ '009	— '012	— '025	— '031	— '007	— '076	— '051	+ '005	+ '064	+ '031	+ '040	+ '008	— '004
Western Rajputana . .	2-4	+ '033	— '007	— '061	+ '005	— '021	— '067	— '035	— '017	+ '014	+ '008	+ '023	— '025	— '013
Eastern Rajputana and Central India.	4	+ '005	— '011	+ '010	+ '044	+ '052	— '102	— '015	— '004	+ '078	+ '045	+ '054	+ '022	+ '015
Nerbudda Valley . . .	3	— '032	— '016	+ '002	+ '049	+ '061	— '025	+ '007	+ '005	+ '041	+ '009	— '018	— '035	+ '004
Chota Nagpur	1	+ '012	— '006	+ '064	— '049	— '095	?	— '022	0	+ '012	— '039	+ '028	+ '018	?
Lower Bengal	5	— '006	— '028	— '022	— '038	— '004	+ '008	— '023	— '017	— '020	— '095	— '006	— '023	— '023

TABLE XII.—Geographical Summary of the aqueous vapour pressure data of Table II in the 1891 monthly weather reviews—continued.

METEOROLOGICAL DISTRICT.	Number of Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year. 1891.
		"	"	"	"	"	"	"	"	"	"	"	"	"
Assam and Cachar .	3	+ '004	— '005	— '013	— '038	— '013	— '004	+ '014	+ '014	+ '018	— '046	— '025	— '005	— '008
Orissa and Sambalpur	3	— '043	— '036	+ '030	— '009	+ '021	— '020	— '023	— '020	— '011	— '046	— '009	— '010	— '015
Central Provinces, South, and Berar.	6—7	— '016	+ '007	+ '049	+ '015	— '012	— '138	— '015	— '012	+ '013	— '033	— '047	— '053	— '020
Konkan .	3	— '048	— '041	— '074	— '008	— '021	+ '007	— '002	— '008	+ '004	— '034	— '062	— '054	— '028
Malabar Coast .	1	— '016	+ '028	+ '026	— '007	+ '023	— '008	+ '003	+ '020	+ '025	+ '016	— '009	+ '052	+ '013
Deccan, Hyderabad, and Mysore.	6	+ '010	+ '059	+ '045	+ '040	+ '051	+ '003	+ '014	+ '007	— '001	— '005	— '069	— '027	+ '011
East Coast and Carnatic.	3—4	— '003	+ '048	+ '029	+ '003	— '004	+ '011	— '019	— '043	— '026	+ '019	+ '005	+ '036	+ '005
Arakan and Pegu .	3—4	— '025	— '018	— '028	— '027	— '008	+ '010	— '002	— '008	— '018	— '027	— '002	+ '015	— '012
Tenasserim .	1	— '006	— '040	— '038	— '063	— '019	— '028	— '031	— '050	— '061	— '022	— '061	— '054	— '039
Bay Islands .	1	— '009	+ '016	— '011	— '023	+ '002	— '007	— '012	— '012	+ '005	+ '038	— '013	+ '006	— '002
Extra-tropical India .	44—46	+ '005	— '011	— '012	— '002	+ '007	— '054	— '041	— '008	+ '031	— '003	+ '018	— '003	— '006
Tropical India .	26—27	— '013	+ '014	+ '014	+ '004	+ '005	— '035	— '005	— '012	— '003	— '013	— '035	— '014	— '008
Whole of India .	70—73	— '002	— '002	— '002	0	+ '006	— '047	— '028	— '009	+ '018	— '007	— '003	— '008	— '007

TABLE XIII.—Geographical Summary of the humidity data of Table II in the 1891 monthly weather reviews.

METEOROLOGICAL DISTRICT.	Number of Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year. 1891.
North-West Himalaya.	7—8	0	+ 9	+ 12	+ 2	+ 3	— 10	— 12	+ 1	+ 6	+ 9	+ 2	— 2	+ 2
Sikkim Himalaya and Nepal.	2—3	— 1	0	+ 2	— 2	+ 2	0	0	— 1	— 1	— 1	— 7	— 5	— 1
Punjab Plains .	4	+ 12	+ 8	+ 10	+ 7	+ 4	— 9	— 14	— 2	+ 1	+ 6	+ 4	— 3	+ 2
Gangetic Plains .	7—8	+ 3	0	+ 6	— 2	+ 2	— 6	— 9	+ 3	+ 7	+ 5	+ 4	— 1	+ 1
Western Rajputana and Sind.	2—4	+ 9	+ 2	— 1	— 1	— 1	— 6	— 7	— 4	— 2	— 2	— 1	— 6	— 2
Eastern Rajputana and Central India.	4	+ 3	— 1	+ 8	+ 3	+ 4	— 12	— 9	— 1	+ 8	+ 6	+ 4	+ 3	+ 1
Nerbudda Valley .	3	— 3	— 2	+ 3	+ 2	+ 2	— 11	— 1	+ 4	+ 10	+ 3	+ 1	— 2	+ 1
Chota Nagpur .	1	+ 2	— 2	+ 15	— 7	— 9	?	— 2	+ 1	+ 2	— 7	+ 1	+ 1	?
Lower Bengal .	5	— 2	— 3	+ 5	— 6	0	— 4	— 1	— 1	— 2	— 10	— 3	— 8	— 3
Assam and Cachar .	3	— 1	— 1	+ 3	— 4	+ 3	0	+ 1	+ 2	— 3	— 1	— 2	— 4	— 1
Orissa and Sambalpur	3	— 8	— 5	+ 4	— 3	+ 1	— 9	— 2	+ 1	+ 1	— 5	— 2	— 6	— 3
Central Provinces South, and Berar.	6—7	— 2	+ 2	+ 7	+ 1	— 2	— 21	— 2	+ 1	+ 6	— 2	— 7	— 7	— 2
Konkan .	3	— 5	— 5	— 5	0	— 2	— 5	— 1	— 2	+ 1	— 3	— 6	— 8	— 3
Malabar Coast .	1	— 1	+ 1	+ 1	— 3	— 3	— 1	— 3	— 2	— 4	— 2	— 3	— 1	— 2
Deccan, Hyderabad and Mysore.	6	+ 2	+ 7	+ 5	+ 3	+ 3	— 7	— 1	0	0	— 1	— 8	— 5	0
East Coast and Carnatic.	3—4	0	+ 5	+ 4	+ 1	— 3	— 2	— 4	— 7	— 6	+ 1	— 2	— 3	— 1
Arakan and Pegu .	3—4	— 4	— 4	— 4	— 3	— 1	— 1	+ 1	0	+ 2	— 3	0	0	— 1
Tenasserim .	1	0	— 2	— 2	— 5	— 6	— 1	— 1	0	0	— 1	— 4	— 3	— 2
Bay Islands .	1	— 3	— 1	— 3	— 5	— 5	— 1	— 5	— 1	— 1	— 2	— 2	+ 2	— 2
Extra-tropical India .	44—46	+ 2	+ 1	+ 6	0	+ 2	— 7	— 7	0	+ 3	+ 2	+ 1	— 3	0
Tropical India .	26—27	— 1	+ 2	+ 2	0	— 1	— 8	— 1	— 1	+ 1	— 2	— 5	— 4	— 2
Whole of India .	70—73	+ 1	+ 1	+ 5	0	+ 1	— 7	— 5	0	+ 2	+ 1	— 1	— 3	0

TABLE XIV.—*Variation of the mean monthly aqueous vapour pressure in 10 meteorological provinces of India in 1891.*

METEOROLOGICAL PROVINCE,	MEAN VARIATION OF AQUEOUS VAPOUR PRESSURE FROM NORMAL IN												Year 1891.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
Burma Coast and Bay Islands .	—'023	—'010	—'021	—'034	—'009	—'022	—'019	—'019	—'029	—'009	—'021	—'008	—'019
Assam	+ '004	—'005	—'013	—'028	—'013	—'004	+ '014	+ '014	+ '018	—'046	—'025	—'005	—'007
Bengal and Orissa	—'009	—'030	—'019	—'030	+ '005	+ '024	—'020	—'016	—'013	—'077	—'003	—'009	—'016
Gangetic Plain and Chota Nagpur.	+ '007	+ '001	—'007	—'037	—'020	—'053	—'032	+ '005	+ '035	—'009	+ '003	+ '007	—'008
Upper Sub-Himalayas	+ '035	—'021	—'016	—'005	—'013	—'105	—'118	—'004	+ '067	+ '050	+ '051	—'005	—'007
Indus Valley and North-West Rajputana.	+ '049	—'006	—'055	+ '015	—'014	—'109	—'112	—'066	+ '077	+ '016	+ '042	—'019	—'015
East Rajputana, Central India and Guzerat.	—'002	—'020	—'007	+ '027	+ '017	—'090	—'012	—'002	—'012	+ '048	+ '033	—'015	—'003
Deccan	—'033	+ '008	+ '035	+ '030	+ '009	—'090	+ '001	+ '001	+ '025	—'017	—'027	—'039	—'008
West Coast	—'040	—'024	—'049	—'008	—'021	+ '003	—'002	—'001	+ '004	—'034	—'049	—'027	—'021
Southern India	+ '025	+ '070	+ '049	+ '016	—'010	+ '012	—'013	—'039	—'013	+ '009	—'024	+ '027	+ '009

TABLE XV.—*Variation of the mean monthly humidity from the normal in 10 meteorological provinces of India in 1891.*

METEOROLOGICAL PROVINCE.	MEAN VARIATION OF HUMIDITY FROM NORMAL IN												Year 1891.
	January	February	March	April	May	June	July	August	September	October	November	December	
Burma Coast and Bay Islands .	— 4	— 2	— 3	— 4	— 3	0	— 1	0	+ 1	— 3	— 1	0	— 2
Assam	— 1	— 1	+ 3	— 3	+ 3	0	+ 1	+ 2	— 3	— 1	— 2	— 4	— 1
Bengal and Orissa	— 2	— 3	+ 3	— 6	0	— 4	— 1	— 1	— 1	— 8	— 2	— 7	— 3
Gangetic Plain and Chota Nagpur.	+ 1	+ 2	+ 9	— 3	+ 1	— 4	— 6	+ 1	+ 2	0	+ 1	— 2	0
Upper Sub-Himalayas	+ 11	+ 2	+ 6	+ 3	+ 2	— 8	— 14	+ 5	+ 10	+ 10	+ 4	0	+ 3
Indus Valley and North-West Rajputana.	+ 12	+ 4	+ 1	+ 2	+ 1	— 7	— 10	— 7	+ 7	+ 1	+ 1	— 6	0
East Rajputana, Central India and Guzerat.	+ 1	— 2	+ 6	+ 2	+ 2	— 10	— 9	0	— 4	+ 5	+ 1	— 3	— 1
Deccan	— 4	+ 2	+ 6	+ 2	0	— 15	— 1	+ 2	+ 6	0	— 3	— 4	— 1
West Coast	— 4	+ 4	— 4	— 1	— 2	— 4	— 1	— 2	+ 1	— 3	— 5	— 7	— 2
Southern India	+ 4	+ 8	+ 5	+ 1	— 1	— 2	— 3	— 6	— 4	0	— 6	— 1	0

The preceding tables shew at a glance the most important features of this element of meteorological observation during the year 1891.

The following gives a brief summary of the most noteworthy features:—

1st.—During the months of January, February and March, the variations of the amount of aqueous vapour pressure from the normal were generally small in amount. Aqueous vapour was generally in slight excess in January in Northern India and in defect in the Deccan. In February and March it was, on the other hand, in slight defect in Northern and Central India, and in moderate excess in the Deccan. The variations of the humidity conditions from the normal during this period were hence

mainly determined by the temperature conditions. As temperature was considerably in defect over the whole of Northern and Central India the air was damper than usual. The excess in January and February was greatest in Upper India, and in March in the Punjab, the Gangetic plain and Chota Nagpur.

2nd.—In the months of April and May, the amount of aqueous vapour was generally slightly less than usual except in the Deccan, Central India and Rajputana, where it was in very slight excess. The air was damper in North-Western India and much drier in North-Eastern India and Burma in April. The deficiency in the humidity percentage averaged six in Bengal, Chota Nagpur and Orissa in

this month. The humidity variations in May were small in all districts, and the humidity conditions approximately normal except in Chota Nagpur and Tenasserim, and at Port Blair, where the air was considerably drier than usual.

3rd.—In consequence of the protracted delay in the establishment of the monsoon currents in Central and North-Western India until nearly the end of July, hot weather temperature and humidity conditions continued over these areas and the air was hence excessively dry. The humidity percentage in June averaged ten or upwards in defect in these areas in the interior, which usually come first under the influence of the monsoon currents, *i.e.*, the Deccan, Berar, the Central Provinces, Central India and Rajputana. The following gives a statement of the most noteworthy variations:—

	Variation of the mean aqueous vapour pressure in June from the normal.	Variation of the mean humidity of the month of June from the normal.
Sironcha	—144	—24
Chanda	—150	—21
Nagpur	—130	—24
Seoni	—149	—22
Raipur	—224	—28

The deficiency was hence most marked in the Central Provinces, which usually receive abundant rain in June.

In July the deficiency was greatest in the more distant districts of the interior which usually receive the greater part of their rainfall from the Bombay current, *i.e.*, in the western districts of the North-Western Provinces, Rajputana and the Punjab. The following gives the most striking examples:—

PROVINCE.	Representative Stations.	Variation of the mean aqueous vapour pressure from the normal.	Variation of the mean humidity of the month from the normal.
NORTH-WESTERN PROVINCES	Agra	—097	—15
	Roorkee	—080	—15
RAJPUTANA	Jeypore	—120	—20
	Mooltan	—166	—16
PUNJAB	Ludhiana	—116	—16
	Simla	—073	—18
HILL STATIONS	Chamba	—145	—17
	Murree	—167	—27

During the remaining two months of the south-west monsoon period, *viz.*, August and September, the monsoon currents prevailed with great steadiness over nearly the whole of India. The variations of the humidity conditions were hence nowhere large, but were chiefly related to the

distribution of the rainfall. Humidity was more or less above the average in the areas of normal or increased rainfall, and in moderate defect in the areas of partial drought in West and Central Rajputana and in Southern India. The following gives data for representative stations in the areas of most excessive and of most deficient rainfall:—

	PROVINCE.	Station.	VARIATION FROM NORMAL OF HUMIDITY IN		VARIATION OF AQUEOUS VAPOUR FROM NORMAL IN	
			August.	September.	August.	September.
AREAS OF EXCESSIVE RAINFALL.	North-Western Provinces.	Meerut	+ 9	+21	+017	+118
		Lucknow	+ 5	+ 9	+011	+084
	Central India.	Sutna	+ 7	+12	+025	+086
		Hoshangabad	+ 7	+12	+027	+054
		Seoni	+ 8	+20	+029	+124
AREAS OF DEFICIENT RAINFALL.	West Punjab.	Mooltan	—14	— 7	—142	—029
		Sind	—10	— 8	—124	—079
	Rajputana.	Ajmere	— 7	— 2	—011	+050
		Salem	—13	—11	—067	—046
	Deccan and Southern India.	Bellary	— 3	— 9	—015	—050
		Trichinopoly	— 6	— 8	—039	—040

The preceding data exhibit the contrast between the humidity conditions of the areas of excessive and deficient rainfall in August and September.

The humidity conditions of the retreating south-west monsoon period were chiefly due to the early and complete withdrawal of the monsoon currents from Northern and Central India and the Deccan in the beginning of October, and to the heavier rainfall than usual in South Madras.

The humidity and amount of aqueous vapour were hence considerably in defect in North-Eastern India, North Madras and the Deccan, which usually receive light to moderate rain in October and November.

The following gives data for a few representative stations:—

PROVINCE.	Station.	VARIATION FROM NORMAL OF HUMIDITY IN		
		October.	November.	December.
BENGAL	Calcutta	—12	— 7	—10
	Dacca	— 9	0	— 6
	Patna	— 6	— 2	— 3
ASSAM	Dhubri	— 3	0	— 2
	Bellary	— 6	—13	— 2
DECCAN	Sholapur	— 4	— 7	—10
	Poona	— 4	— 8	— 5
EAST COAST	Vizagapatam	— 6	—11	— 9

The conditions were hence very persistent throughout the whole period.

In Southern India humidity was, on the other hand, in slight excess throughout the period, *e.g.* :—

PROVINCE.	Station.	VARIATION FROM NORMAL OF HUMIDITY IN		
		October.	November.	December.
SOUTHERN INDIA.	Madras . . .	+4	0	+6
	Trichinopoly . .	+7	+1	+3
	Salem . . .	0	+1	+4

In the districts of North-Western India, Central India and the West Coast, which received excessive rain in August and September, humidity was more or less above the normal throughout the month of October, but in November

it fell below the normal over a portion of the area, including Berar and the Central Provinces. The following gives data for representative stations in the areas of excessive and of deficient rainfall during the preceding south-west monsoon months :—

	PROVINCE.	Station.	VARIATION FROM NORMAL OF HUMIDITY IN		
			October.	November.	December.
AREAS OF EXCESSIVE RAINFALL.	Central Provinces.	Hoshangabad	+4	—2	—5
		Seoni . . .	?	+3	—7
	Central India North-Western Provinces.	Jubbulpore . .	+4	+5	+1
		Sutna . . .	+9	+11	+6
		Lucknow . . .	+10	+10	+4
AREAS OF DEFICIENT RAINFALL.	Rajputana . .	Meerut . . .	+13	+11	+1
		Jeyapore . . .	+4	—1	—9
	Sind . . .	Deesa . . .	—4	—8	—8
		Hyderabad . .	—7	—12	—15
	West Punjab . .	Mooltan . . .	+1	+2	—4

Cloud.

The following tables give variation data of the cloud amount :—

1st.—For the nineteen meteorological areas adopted in the geographical summaries of meteorological data in the annual reports previous to 1891.

2nd.—For ten meteorological provinces of the Empire.

TABLE XVI.—Geographical summary of the cloud data of Table II in the 1891 monthly weather reviews.

DISTRICT.	Number of Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
North-West Himalaya	8	+0.7	+1.4	+0.9	+0.6	+0.5	—1.7	—1.0	+0.6	+2.0	+1.3	—0.2	—0.4	+0.4
Sikkim Himalaya, and Nepal . . .	2—3	—0.8	+0.2	+1.0	—0.5	+1.1	+0.9	+0.7	+0.7	+0.5	—0.9	—0.5	—1.1	+0.1
Punjab Plains . . .	4	+1.7	+1.4	+0.5	+1.1	+1.2	—1.2	—1.3	—0.1	+0.9	+0.8	+0.5	—0.3	+0.4
Gangetic Plains . .	8—9	—0.7	+0.1	+1.4	+0.5	+0.2	—1.8	—1.0	+0.7	+1.6	—0.1	—0.5	—0.5	—0.2
Western Rajputana .	4	+0.2	—0.2	+1.0	+0.5	+0.3	—1.8	—0.8	—0.8	+0.1	+0.4	—0.2	+0.1	—0.1
Eastern Rajputana and Central India .	4	—0.6	—0.8	+1.1	+0.8	+0.2	—2.7	—1.2	—0.1	+1.8	—0.3	—0.4	—0.3	—0.2
Nerbudda Valley . .	3	—1.0	+0.1	+0.3	+0.1	—0.5	—3.2	+0.1	+1.2	+2.7	—0.6	—1.3	—0.9	—0.3
Chota Nagpur . . .	1	—1.2	0	+3.7	+0.3	+1.7	—0.2	+0.8	+1.0	+0.9	—0.1	+0.8	—0.4	+0.6
Lower Bengal . . .	5	—1.1	+0.6	+2.4	+0.1	+0.6	—0.9	+0.5	+0.3	+0.4	—1.4	+0.1	+0.3	+0.2
Assam and Cachar . .	3	—0.7	—0.3	+1.5	0	+1.2	+0.3	+0.8	—0.2	—0.1	—0.8	+0.2	—0.6	+0.1
Orissa and Sambalpur . . .	3	—0.6	+0.7	+2.3	+0.3	+1.2	—0.8	+1.1	+1.3	+1.4	—1.2	—0.1	0	+0.5
Central Provinces, South, and Berar .	7—8	—0.8	+0.2	+1.0	+0.8	+0.9	—2.5	+0.7	+0.8	+1.8	—0.8	—1.4	—0.8	0
Konkan . . .	3	—0.8	—0.4	—0.6	—0.4	—1.1	—2.0	+0.2	—0.6	—0.4	—1.4	—0.8	—0.8	—0.8
Malabar Coast . . .	1	—3.5	—0.5	—1.1	—0.7	—0.9	+1.3	0	—1.2	—2.0	+1.0	—1.4	—0.2	—0.8
Deccan, Hyderabad, and Mysore . . .	6	—0.6	+0.8	+0.3	+0.8	+0.5	—1.4	+0.2	+0.2	0	—0.3	—1.3	—0.2	—0.1
East Coast, and Carnatic . . .	3—4	—0.4	+1.8	+0.2	—0.2	+0.2	—1.0	+0.6	—0.1	—0.3	+0.3	—0.6	+0.9	+0.1
Arakan and Pegu . .	5	—1.2	+0.9	+0.7	—0.2	—0.5	+0.7	+0.9	+0.4	+1.0	+1.0	+0.8	+0.8	+0.3
Tenasserim . . .	1	—0.5	+0.5	—0.8	—1.2	—0.6	+0.5	+0.3	+0.9	+0.8	—1.9	—0.5	+1.2	—0.1
Bay Islands . . .	1	+0.4	+1.4	+0.1	—0.9	—0.4	+1.7	+1.6	+1.9	+1.4	—0.7	+1.7	+2.2	+0.9
Extra-tropical . . .	45—47	—0.2	+0.4	+1.3	+0.4	+0.6	—1.4	—0.4	+0.4	+1.2	—0.2	—0.2	—0.3	+0.1
Tropical . . .	27—29	—0.8	+0.6	+0.3	+0.2	+0.1	—1.1	+0.5	+0.3	+0.6	—0.6	—0.7	0	—0.1
Whole of India . . .	72—77	—0.5	+0.5	+0.9	+0.3	+0.4	—1.3	0	+0.4	+1.0	—0.3	—0.4	—0.2	+0.1

TABLE XVII.—*Variation of the mean cloud amount in 10 meteorological provinces of India in 1891.*

METEOROLOGICAL PROVINCE.	MEAN VARIATION OF CLOUD AMOUNT FROM NORMAL IN												Year 1891.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
Burma Coast and Bay Islands .	—0·9	+0·9	+0·2	—0·5	—0·9	+0·8	+0·9	—0·8	+1·0	—1·3	+0·6	+1·2	+0·1
Assam	—0·7	—0·3	+1·1	0	+1·0	+0·3	+0·5	—0·5	—0·5	—0·9	+0·2	—0·6	0
Bengal and Orissa	—1·1	+0·7	+2·1	+0·2	+0·7	—0·6	+0·7	+0·5	+0·7	—1·2	+0·4	+0·5	+0·3
Gangetic plain and Chota Nagpur.	—0·9	—0·1	+2·1	+0·2	+0·5	—1·2	—0·3	+0·6	+0·7	—0·6	—0·4	—0·6	0
Upper Sub-Himalayas . . .	+0·5	+1·5	+0·6	+1·0	+0·6	—2·2	—1·8	+0·5	+2·1	+0·9	+0·1	—0·2	+0·3
Indus Valley and North-West Rajputana.	+1·0	+0·7	+0·9	+1·0	+1·5	—0·5	0	—0·1	+1·9	+0·4	+0·7	+0·8	+0·7
East Rajputana, Central India and Guzerat.	—0·2	—0·5	+1·4	+1·1	+0·5	—2·6	—0·9	0	+0·2	—0·3	—0·3	+0·1	—0·1
Deccan	—0·8	—0·1	+0·7	+0·5	+0·4	—2·1	+0·6	+1·0	+1·7	—0·9	—1·4	—0·9	—0·1
West Coast	—1·4	—0·5	—0·8	—0·5	—1·1	—1·2	+0·1	—0·8	—0·4	—1·4	—1·0	—0·7	—0·8
Southern India	—0·7	+1·8	+0·3	+0·1	+0·2	—1·0	+0·3	—0·1	—0·5	+0·4	—0·6	+0·8	+0·1

The chief features of the year which have been fully stated in the preceding monthly reviews were as follows:—

1st.—Excessive cloud during the cold weather months.

The increased cloud amount was restricted in the month of January to Upper India and the adjacent hill districts. In February it extended eastwards over the Gangetic plain, Bengal, Assam and Burma, and also southwards to the Central Provinces and Deccan.

2nd.—The abnormal and disturbed conditions which gave, throughout the first five months, excessive and prolonged snowfall in the mountain districts of Northern and North-Western India gave increased cloud to the greater part of India throughout the hot weather months. This effect was most strongly exhibited in the month of March, when the mean cloud amount was in excess over the whole of India except the West Coast districts. The excess was greatest in Bengal and the Gangetic plain, where it averaged 2·1, the normal amount being 2·4.

The excess was small in April, but increased again in May, when it was nearly as large as in March, and extended over the whole of India except Burma and the West Coast districts.

3rd.—The cloud conditions of the first two months of the rains in June and July 1892 were due to the protracted delay in the establishment of the monsoon currents and accompanying rains over the whole of India except Burma. Hence the cloud amount was very largely in defect in June over the whole of India except Burma and Assam. The deficiency was greatest in the interior of the country, more especially the

Deccan, Berar, the Central Provinces, Central India and Rajputana, over which area the deficiency averaged 2·4 (the normal being 4·7).

The advance and extension of the monsoon currents in July gave increased cloud to the whole of India except North-Western India (*i.e.*, Rajputana, Central India, the North-Western Provinces and the Punjab). The deficiency was greatest in the districts most remote from the coast, *i.e.*, the Punjab and North-Western Himalayas. During the remaining two months of the south-west monsoon period the humid currents received their greatest extension to the North Punjab, and were unusually steady and strong. Hence the cloud amount was in general excess over the whole of Northern and Central India and the North Deccan, and was, as usually occurs under these conditions, in slight defect in Southern India and the West Coast districts. The cloud amount was most largely in excess in this period in East Rajputana, the East Punjab, Central India, the North-Western Provinces and Central Provinces, over the greater part of which area the rainfall was unusually heavy and continuous.

4th.—The cloud conditions of the retreating south-west monsoon were even more strongly marked than those of the preceding periods of the year. The unusually rapid retreat of the currents in the beginning of October to the south of the Bay gave a moderate increase of cloud to Southern India and a general deficiency over the remainder of the country, the defect being largest in Burma and Bengal, where it averaged

1·2 (the normal being 5·1). In November the current was not only very weak, but two storms which formed during the month, advanced to the north-east of the Bay area. Hence the cloud amount was in defect over the whole of India, except in the two areas affected by these storms, *i.e.*, Burma, Assam, and Bengal. The deficiency of cloud was very marked in the Deccan and Southern India, and accompanied a general deficiency of rainfall in that area. The conditions of December resembled

those of October. The retreating south-west monsoon currents were confined to the south of the Bay and diverted to South India until the 24th or 25th, when they finally withdrew from the Bay area. Hence the cloud amount was generally in defect except in Southern India, where it was in slight excess.

The variations of the cloud amount were hence determined mainly by the extension of the great atmospheric currents, and more especially of the lower south-west monsoon currents.

Rainfall.

The rainfall data of India are now issued in a separate volume. The first volume, that of the year 1891, contains the rainfall data of 1,977 stations, which are classified under their respective administrative divisions according to the following scheme :—

PROVINCE.	Number of Stations.
Burma	98
Assam	90
Bengal, Behar, Chota Nagpur, and Orissa	267
North-Western Provinces and Oudh	267
Punjab	190
Bombay	279
Madras	316
Central Provinces	66
Berar	26
Mysore	76
Baluchistan	46
Kashmir	9
Rajputana	113
Central India	35
Hyderabad (Deccan)	27
Travancore	39
Cochin	3
Coorg	9
Pudukota	12

The information given in these monthly statements includes—

- (a) the actual rainfall day by day ;
- (b) the monthly totals ;
- (c) the number of rainy days ;
- (d) the accumulated rainfall (up to the date of each statement) throughout each of the seasons into which the year is divided ;

and for all stations for which rainfall data for at least six years are available ;

(e) the average or normal monthly rainfall ;

(f) the average or normal number of rainy days.

This volume hence contains the whole of the rainfall statistics and the available information of that important element of meteorological observation, and the reader is referred to it for any special data he may require.

Symons' rain-gauges are now used at all rain-gauge stations, with the exception of those in Mysore. The hour of measuring rainfall is 8 A.M. throughout India, and the amounts registered give the rainfall of the previous 24 hours, and hence generally of the rainfall of the previous civil day.

The following tables give summaries of the rainfall data of the year. In the first table the summary is drawn up in the same form that has been used for the past years in the annual reports issued by the Department. In the four following tables the actual average rainfall data are given for the 52 meteorological districts into which the empire is divided for the comparison of crops and rainfall for the four periods into which the year may be divided. The four periods are as follows :—

1st.—From January 1st to February 28th, which forms the period of the cold weather rains of Upper India.

2nd.—From March 1st to May 31st, which includes the hot season when rain occurs mainly in the coast districts and in Assam during thunder showers.

3rd.—From June 1st to October 31st, which forms the period of the south-west monsoon rains proper.

4th.—From November 1st to December 31st, which includes the period of the so-called north-east monsoon rains of Southern India,—more especially of the Coromandel Coast districts.

TABLE XVIII.—Geographical Summary of Rainfall Anomalies in 1891.

METEOROLOGICAL DIVISION.	Area, square miles.	Number of stations.	Normal rainfall.	Actual rainfall, 1891.	Mean excess or defect.	Total excess, square miles, $\times 1$ inch.	Total defect, square miles, $\times 1$ inch.
			Inches.	Inches.	Inches.		
I. Punjab Plains	120,000	29	21'52	18'75	- 2'77	...	332,400
II. N.-W. Provinces and Oudh	83,500	45	37'49	43'43	+ 5'94	495,990	...
III. Rajputana	67,000	19	28'42	20'77	- 7'65	...	512,550
IV. Central India States	91,000	20	42'01	47'79	+ 5'78	525,980	...
V. Bihar	30,000	15	45'01	36'80	- 8'21	...	246,300
VI. Western Bengal	38,000	10	49'39	47'62	- 1'77	...	67,260
VII. Lower Bengal	54,000	28	66'64	56'60	- 10'04	...	542,160
VIII. Assam and Cachar	61,000	16	96'39	80'51	- 15'88	...	968,680
IX. Orissa and Northern Circars	27,000	16	48'00	42'04	- 5'96	...	160,920
X. Central Provinces, South	61,000	18	51'38	61'73	+ 10'35	631,350	...
XI. Berar and Khandeish	43,000	13	35'06	36'78	+ 0'82	35,260	...
XII. Guzerat	54,500	12	33'03	31'20	- 1'83	...	99,735
XIII. Sind and Cutch	68,000	10	8'49	3'38	- 5'11	...	347,480
XIV. North Deccan	48,000	13	30'54	25'01	- 5'53	...	265,440
XV. Konkan and Ghâts	16,000	11	138'02	123'38	- 15'54	...	248,640
XVI. Malabar and Ghâts	18,000	8	113'89	101'34	- 12'55	...	225,900
XVII. Hyderabad	74,000	17	32'54	23'62	- 8'92	...	660,080
XVIII. Mysore and Bellary	58,000	18	29'52	19'70	- 9'82	...	569,560
XIX. Carnatic	72,000	38	36'06	32'15	- 3'91	...	281,520
XX. Arakan	11,000	7	148'04	146'36	- 1'68	...	18,480
XXI. Pegu	32,500	7	71'95	80'04	+ 8'09	202,175	...
XXII. Tenasserim	10,500	4	172'38	184'06	+ 11'68	122,640	...
XXIII. Upper Burma	?	13	38'73	29'66	- 9'07	...	...

On the mean of the whole area represented in the above table there was a defect of 0'30 inch, or, excluding the

Burmese Peninsula, 0'35 inch.

TABLE XIX.—Geographical Summary of the Distribution of Rainfall in 1891, according to Seasons.

METEOROLOGICAL DISTRICT.	JANUARY AND FEBRUARY.			MARCH TO MAY.			JUNE TO OCTOBER.			NOVEMBER AND DECEMBER.		
	Normal average.	Actual average, 1891.	Difference.	Normal average.	Actual average, 1891.	Difference.	Normal average.	Actual average, 1891.	Difference.	Normal average.	Actual average, 1891.	Difference.
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
North-West Himalayas	6'17	9'20	+ 3'03	7'61	8'24	+ 0'63	40'53	38'77	- 1'76	1'75	0'24	- 1'51
Punjab Plains	2'08	4'07	+ 1'99	2'54	3'14	+ 0'60	16'13	11'49	- 4'64	0'77	0'04	- 0'73
N.-W. Provinces and Oudh	1'41	1'24	- 0'17	1'42	3'02	+ 1'60	35'25	39'19	+ 3'94	0'38	0'04	- 0'34
Rajputana	0'46	0'58	+ 0'12	0'74	1'22	+ 0'48	21'51	16'21	- 5'30	0'22	0	- 0'22
Central India States	0'01	0'58	+ 0'57	0'78	0'70	- 0'08	41'88	46'54	+ 4'66	0'67	0	- 0'67
Bihar	1'17	2'02	+ 0'85	2'54	4'96	+ 2'42	40'47	29'83	- 10'64	0'31	0	- 0'31
Western Bengal and Chota Nagpur	1'28	1'47	+ 0'19	3'48	8'50	+ 5'02	46'49	39'92	- 6'57	0'72	0'13	- 0'59
Lower Bengal	1'41	2'74	+ 1'33	10'40	15'49	+ 5'09	53'63	36'66	- 16'97	0'71	1'11	+ 0'40
Eastern Himalayas	1'56	1'63	+ 0'07	18'12	24'21	+ 6'09	111'11	71'64	- 39'47	0'46	0'11	- 0'35
Assam and Eastern Bengal	1'92	2'09	+ 0'17	26'16	23'54	- 2'62	87'78	52'56	- 35'22	1'28	1'36	+ 0'08
Orissa and Northern Circars	0'68	0'77	+ 0'09	4'36	7'24	+ 2'88	43'73	38'45	- 5'28	2'86	1'75	- 1'11
Central Provinces, South	0'82	1'28	+ 0'46	1'80	3'71	+ 1'91	48'34	57'88	+ 9'54	0'93	0'01	- 0'92
Berar and Khandeish	0'47	1'14	+ 0'67	0'99	0'63	- 0'36	35'29	36'83	+ 1'54	1'37	0	- 1'37
Guzerat	0'20	0'08	- 0'12	0'41	0'17	- 0'24	31'21	30'73	- 0'48	0'31	0	- 0'31
Sind and Cutch	0'50	0'64	+ 0'14	0'50	0'57	+ 0'07	7'88	2'97	- 4'91	0'22	0	- 0'22
North Deccan	0'20	0'40	+ 0'20	3'13	3'76	+ 0'63	25'53	20'41	- 5'12	1'69	0'45	- 1'24
Konkan and Ghâts	0'28	0	- 0'28	1'65	0'11	- 1'54	140'16	113'09	- 27'07	1'12	0'22	- 0'90
Malabar and Ghâts	0'51	0'82	+ 0'31	11'09	8'88	- 2'21	98'08	88'10	- 9'98	4'22	3'62	- 0'60
Hyderabad	0'16	0'65	+ 0'49	1'91	1'42	- 0'49	29'03	22'74	- 6'29	1'74	0	- 1'74
Ceded Districts and Mysore	0'25	0'23	- 0'02	4'05	3'34	- 1'31	21'51	15'41	- 6'10	2'80	0'60	- 2'20
Carnatic	0'68	2'08	+ 1'40	4'15	2'91	- 1'24	20'89	18'19	- 2'70	10'76	9'06	- 0'80
Nilgiris	1'42	10'20	+ 8'78	9'28	9'29	+ 0'01	25'42	40'93	+ 15'51	12'52	8'84	- 3'68
Arakan	1'01	0'17	- 0'84	15'09	14'31	- 0'78	128'90	128'29	- 0'61	3'08	3'61	+ 0'53
Pegu	0'24	0'48	+ 0'24	7'96	3'46	- 4'50	66'50	76'32	+ 9'82	3'11	8'38	+ 5'27
Tenasserim	0'93	1'97	+ 1'04	20'91	9'98	- 10'93	148'10	168'58	+ 20'48	2'35	3'57	+ 1'22
Upper Burma	0'40	0'09	- 0'31	5'49	2'42	- 3'07	30'85	23'58	- 7'27	1'29	2'51	+ 1'22
Bay Islands	2'19	1'96	- 0'23	18'59	13'38	- 5'21	81'25	71'43	- 9'82	14'64	26'19	+ 11'55
Mean	1'10	1'80	+ 0'70	6'87	6'61	- 0'26	54'72	49'84	- 4'88	2'68	2'69	+ 0'01

TABLE XX.—Giving average rainfall data of 51 meteorological districts in India for the four seasons of the year 1891 and for the whole year.

PROVINCES.	Division.	JANUARY AND FEBRUARY.			MARCH TO MAY.			JUNE TO OCTOBER.			NOVEMBER AND DECEMBER.			WHOLE YEAR.		
		Average actual rainfall.	Average normal rainfall.	Variation of actual from normal.	Average actual rainfall.	Average normal rainfall.	Variation of actual from normal.	Actual rainfall.	Normal rainfall.	Variation of actual from normal.	Actual rainfall.	Normal rainfall.	Variation of actual from normal.	Mean actual rainfall.	Mean normal rainfall.	Variation of actual from normal.
		Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
BURMA.	Tenasserim . . .	0.87	0.26	+0.61	10.57	26.10	-15.53	204.90	161.11	+43.79	4.05	1.20	+2.85	220.39	188.67	+31.72
	Lower Burma . . .	0.38	0.37	+0.01	5.23	14.03	-8.80	106.90	83.43	+23.47	5.02	2.98	+2.04	117.53	100.81	+16.72
	Central do. . .	0.11	0.12	-0.01	3.07	10.60	-7.53	76.94	75.31	+1.63	4.43	1.66	+2.77	84.55	87.69	-3.14
	Upper do. . .	0.03	?	?	2.13	?	?	26.56	?	?	2.19	?	?	30.91	?	?
	Arakan . . .	0.03	0.20	-0.17	13.08	23.36	-10.28	164.53	156.49	+8.04	5.32	2.94	+2.38	182.96	182.99	-0.03
BENGAL AND ASSAM.	Eastern Bengal . . .	2.13	1.68	+0.45	20.89	18.42	+2.47	49.06	74.67	-25.61	1.17	1.31	-0.14	73.25	96.08	-22.83
	Assam (Surma) . . .	1.92	2.20	-0.28	38.54	48.53	-9.99	107.83	128.27	-20.44	2.85	1.21	+1.64	151.14	180.21	-29.07
	Do. (Brahmaputra) . . .	2.06	2.07	-0.01	20.30	24.08	-3.78	44.21	57.79	-13.58	0.28	0.94	-0.66	66.85	84.88	-18.03
	Deltaic Bengal . . .	2.48	1.75	+0.73	14.34	11.46	+2.88	34.40	47.40	-13.00	0.95	0.58	+0.37	52.17	61.19	-9.02
	Central Bengal . . .	2.25	1.29	+0.96	14.98	8.23	+6.75	32.17	47.16	-14.99	0.98	0.44	+0.54	50.38	57.12	-6.74
	North do. . .	1.74	0.95	+0.79	17.79	17.60	+0.19	51.89	87.30	-35.41	0.12	0.37	-0.25	71.54	106.22	-34.68
	Orissa . . .	0.73	1.28	-0.55	9.13	6.45	+2.68	44.74	49.24	-4.50	6.89	1.68	+5.21	61.49	58.65	+2.84
	Chota Nagpur . . .	1.64	1.45	+0.19	10.70	4.69	+6.01	38.02	46.23	-8.21	0.16	0.61	-0.45	50.52	52.98	-2.46
	Bihar (South) . . .	1.98	1.08	+0.90	6.25	2.55	+3.70	28.41	39.26	-10.85	0	0.46	-0.46	36.64	43.35	-6.71
	Do. (North) . . .	1.97	1.09	+0.88	7.74	4.26	+3.48	31.73	45.90	-14.17	0	0.29	-0.29	41.44	51.54	-10.10
NORTH-WESTERN PROVINCES AND OUDH.	North-Western Provinces (East) . . .	1.43	1.24	+0.19	1.73	1.02	+0.71	29.81	35.27	-5.46	0	0.39	-0.39	32.97	37.92	-4.95
	Oudh (South) . . .	0.83	0.95	-0.12	3.09	1.11	+1.98	34.23	33.72	+0.51	0	0.48	-0.48	38.15	36.26	+1.89
	Do. (North) . . .	1.16	1.37	-0.21	4.32	1.72	+2.60	36.95	36.22	+0.73	0	0.46	-0.46	42.43	39.77	+2.66
	North-Western Provinces (Central) . . .	0.52	0.94	-0.42	2.38	0.88	+1.50	34.67	31.23	+3.44	0	0.49	-0.49	37.57	33.54	+4.03
	North-Western Provinces (West) . . .	0.60	1.16	-0.56	2.20	1.04	+1.16	32.99	27.31	+5.68	0	0.53	-0.53	35.79	30.04	+5.75
	North-Western Provinces (Submontane) . . .	2.07	2.33	-0.26	3.38	2.74	+0.64	42.86	39.04	+3.82	0.05	0.68	-0.63	48.36	44.79	+3.57
PUNJAB.	Punjab (South) . . .	1.87	1.39	+0.48	2.63	1.36	+1.27	7.74	11.31	-3.57	0	0.38	-0.38	12.24	14.44	-2.20
	Do. (Central) . . .	1.73	1.65	+0.08	3.17	1.41	+1.76	21.23	18.93	+2.30	0.05	0.40	-0.35	26.18	22.39	+3.79
	Do. (Submontane) . . .	4.95	2.99	+1.96	2.98	2.40	+0.58	17.46	23.56	-6.10	0.04	0.76	-0.72	25.43	29.71	-4.28
	Do. (Hill Districts) . . .	9.28	7.72	+1.56	6.80	7.64	-0.84	55.34	56.28	-0.94	0.20	1.58	-1.38	71.62	73.22	-1.60
	Do. (North-West) . . .	7.40	3.70	+3.70	4.82	4.26	+0.56	11.12	15.10	-3.98	0.17	1.24	-1.07	23.51	24.30	-0.79
	Do. (West) . . .	2.11	1.26	+0.85	1.88	1.59	+0.29	3.67	5.61	-1.94	0	0.30	-0.30	7.66	8.76	-1.10
BOMBAY AND MALABAR COAST DISTRICTS. (MADRAS).	Malabar . . .	0.79	0.86	-0.07	15.48	17.37	-1.89	89.15	94.28	-5.13	6.26	5.43	+0.83	111.68	117.94	-6.26
	Madras (South Central) . . .	2.91	0.55	+2.36	5.45	6.91	-1.46	31.81	22.46	+9.35	3.86	5.20	-1.34	44.03	35.12	+8.91
	Coorg . . .	0.20	0.17	+0.03	8.81	12.26	-3.45	86.85	94.86	-8.01	2.39	3.61	-1.22	98.25	110.90	-12.65
	Mysore . . .	0.24	0.46	-0.22	4.53	?	?	19.97	23.74	-3.77	0.62	2.50	-1.88	25.36	?	?
	Konkan . . .	0.04	0.33	-0.29	1.11	3.45	-2.34	93.71	116.07	-23.26	0.31	1.00	-0.69	95.17	121.75	-26.58
	Bombay Deccan . . .	0.49	0.21	+0.28	2.91	3.25	-0.34	25.94	26.88	-0.94	0.39	1.64	-1.25	29.73	31.98	-2.25
	Khandeish . . .	0.15	0.31	-0.16	0.08	2.11	-2.03	21.45	24.36	-2.91	0.01	1.43	-1.42	21.69	28.21	-6.52
CENTRAL PROVINCES AND BERAR.	Berar . . .	1.45	0.58	+0.87	0.65	1.54	-0.89	37.98	33.30	+4.68	0	1.30	-1.30	40.08	36.72	+3.36
	Central Provinces (West) . . .	1.04	0.75	+0.29	1.05	1.38	-0.33	45.60	38.73	+6.87	0	0.91	-0.91	47.69	41.77	+5.92
	Ditto (Central) . . .	0.99	1.12	-0.13	2.03	1.60	+0.43	61.82	49.16	+12.66	0	0.67	-0.67	64.84	52.55	+12.29
	Ditto (East) . . .	0.99	0.91	+0.08	7.92	2.42	+5.50	51.56	46.07	+5.49	0	0.76	-0.76	60.47	50.16	+10.31
BOMBAY (NORTH).	Guzerat . . .	0	0.13	-0.13	0.14	0.43	-0.29	36.28	41.61	-5.33	0	0.21	-0.21	36.42	42.38	-5.96
	Kathiawar . . .	0.05	0.15	-0.10	0.11	0.53	-0.42	16.08	19.99	-3.91	0	0.13	-0.13	16.24	20.80	-4.56
	Sind . . .	0.84	0.62	+0.22	0.95	0.51	+0.44	1.02	4.33	-3.31	0	0.18	-0.18	2.81	5.64	-2.83
RAJPUTANA AND CENTRAL INDIA.	Central India (East) . . .	0.47	0.66	-0.19	0.28	1.05	-0.77	33.82	35.05	-1.23	0	0.60	-0.60	34.57	37.36	-2.79
	Rajputana (East) Central India (West) . . .	0.33	0.43	-0.10	1.51	1.13	+0.38	18.48	25.24	-6.76	0	0.35	-0.35	20.32	27.15	-6.83
	Rajputana (West) . . .	0.39	0.45	-0.06	0.53	0.84	-0.31	7.38	12.59	-5.21	0	0.12	-0.12	8.30	14.00	-5.70
MADRAS.	East Coast (North) . . .	0.67	0.69	-0.02	5.57	4.83	+0.74	19.54	30.00	-10.46	0.61	3.90	-3.29	26.39	39.42	-13.03
	Do. (do.) (a) . . .	0.40	?	?	5.58	?	?	39.14	?	?	0.25	?	?	45.37	?	?
	Hyderabad (South) . . .	0.22	0.37	-0.15	2.20	2.86	-0.66	14.16	22.65	-8.49	0.03	0.71	-0.68	16.61	26.59	-9.98
	Madras (Central) . . .	0.13	0.23	-0.10	1.30	3.52	-2.22	8.25	20.61	-12.36	0.74	1.91	-1.17	10.42	26.27	-15.85
	East Coast (Central) . . .	1.37	0.59	+0.78	0.85	2.16	-1.31	15.86	26.06	-10.20	1.55	8.50	-6.95	19.63	37.31	-17.68
	Do. (South) . . .	2.50	1.13	+1.37	2.00	4.28	-2.28	18.52	22.57	-4.05	13.20	11.45	+1.75	36.22	39.43	-3.21
	Madras (South) . . .	2.27	1.60	+0.67	6.51	5.81	+0.70	17.45	15.99	+1.46	9.23	7.60	+1.63	35.46	31.09	+4.46

TABLE XXI.—*Giving average actual and normal number of rainy days in 30 meteorological districts for the four seasons of the year 1891 and for the whole year.*

PROVINCES.	Division.	JANUARY AND FEBRUARY.			MARCH TO MAY.			JUNE TO OCTOBER.			NOVEMBER AND DECEMBER.			WHOLE YEAR.		
		Average actual number of rainy days.	Average normal number of rainy days.	Variation of actual from normal.	Average actual number of rainy days.	Average normal number of rainy days.	Variation of actual from normal.	Average actual number of rainy days.	Average normal number of rainy days.	Variation of actual from normal.	Average actual number of rainy days.	Average normal number of rainy days.	Variation of actual from normal.	Average actual number of rainy days.	Average normal number of rainy days.	Variation of actual from normal.
BENGAL AND ASSAM.	Eastern Bengal . . .	2.7	2.8	-0.1	26.4	19.9	+6.5	58.9	74.7	-15.8	2.8	2.0	+0.8	90.8	99.4	-8.6
	Assam (Surma) . . .	2.9	4.2	-1.3	40.3	37.7	+2.6	80.6	84.1	-3.5	2.9	2.1	+0.8	126.7	128.1	-1.4
	Do. (Bhramaputra) . . .	5.0	6.6	-1.6	33.8	34.7	-0.9	62.8	67.6	-4.8	1.1	2.4	-1.3	102.7	111.3	-8.6
	Deltaic Bengal . . .	2.5	2.7	-0.2	19.1	14.3	+4.8	54.2	63.2	-9.0	1.5	1.4	+0.1	77.3	81.6	-4.3
	Central do.	2.9	2.3	+0.6	17.9	16.8	+1.1	48.6	60.9	-12.3	1.5	1.1	+0.4	70.9	75.1	-4.2
	North do.	3.5	2.4	+1.1	19.6	16.8	+2.8	53.3	68.4	-15.1	0.3	0.8	-0.5	76.7	88.4	-1.7
	Orissa	2.2	2.2	0	13.0	9.6	+3.4	52.7	59.5	-6.8	2.7	2.9	-0.2	70.6	74.2	-3.6
	Chota Nagpur	1.8	2.7	-0.9	11.0	7.0	+4.0	53.2	63.0	-9.8	0.4	1.4	-1.0	66.4	74.1	-7.7
NORTH-WESTERN PROVINCES AND OUDH.	Bihar (South)	2.2	2.5	-0.3	5.8	4.2	+1.6	37.8	48.1	-10.3	0	0.8	-0.8	45.8	55.6	-9.8
	Do. (North)	2.4	2.4	0	9.9	6.2	+3.7	38.4	48.6	-10.2	0	0.7	-0.7	50.7	57.9	-7.2
	North-Western Provinces (East).	1.7	2.1	-0.4	3.8	2.1	+1.7	37.8	40.9	-3.1	0	0.6	-0.6	43.3	45.7	-2.4
	Oudh (South)	1.9	2.1	-0.2	4.0	2.2	+1.8	39.7	37.8	+1.9	0	0.7	-0.7	45.6	42.8	+2.8
	Do. (North)	2.0	2.3	-0.3	5.1	3.0	+2.1	38.1	38.1	0	0	0.7	-0.7	45.2	44.1	+1.1
	North-Western Provinces (Central).	1.5	2.0	-0.5	3.7	1.9	+1.8	40.9	35.2	+5.7	0	0.5	-0.5	46.1	39.6	+6.5
BOMBAY AND MALABAR COAST DISTRICT (MADRAS)	North-Western Provinces (West).	1.6	2.1	-0.5	3.6	2.4	+1.2	33.1	30.7	+2.4	0	0.6	-0.6	38.3	35.8	+2.5
	North-Western Provinces (Submontane).	4.3	4.0	+0.3	4.8	4.8	0	41.5	39.7	+1.8	0	0.9	-0.9	50.6	49.4	+1.2
	Malabar	1.5	0.5	+1.0	11.6	12.4	-0.8	96.2	99.3	-3.1	4.9	7.1	-2.2	114.2	119.3	-5.1
	Madras, (South Central).	3.0	0.5	+2.5	5.0	9.0	-4.0	23.7	27.8	-4.1	6.6	8.3	-1.7	38.3	45.6	-7.3
	Konkan	0	0.2	-0.2	1.4	3.3	-1.9	84.0	94.3	-10.3	0.7	2.0	-1.3	86.1	99.8	-13.7
BOMBAY (NORTH)	Bombay Deccan	1.0	0.2	+0.8	5.3	5.7	-0.4	37.6	46.1	-8.5	0.8	3.1	-2.3	44.7	55.1	-10.4
	Khandeish	0.3	0.2	+0.1	0.2	2.1	-1.9	37.6	42.1	-4.5	0	2.2	-2.2	38.1	46.6	-8.5
	Guzerat	0	0.2	-0.2	0.3	0.5	-0.2	36.6	48.0	-11.4	0	0.5	-0.5	36.9	49.2	-12.3
MADRAS	Kathiawar	0.2	0.2	0	0.5	0.6	-0.1	23.0	27.7	-4.7	0	0.2	-0.2	23.7	28.7	-5.0
	Sind	2.7	?	?	1.9	?	?	1.7	?	?	?	?	?	6.3	?	?
	East Coast (North) . . .	1.3	0.7	+0.6	7.0	5.3	+1.7	38.1	43.2	-5.1	0.7	4.3	-3.6	47.1	53.5	-6.4
	Do. (do.) (a)	1.5	0.7	+0.8	17.5	9.7	+7.8	79.5	67.7	+11.9	1.0	5.3	-4.3	99.5	83.3	+16
	Madras (Central)	0.4	0.2	+0.2	2.2	4.2	-2.0	21.2	31.4	-10.2	1.8	4.3	-2.5	25.6	40.1	-14.5
	East Coast (Central) . . .	2.4	0.8	+1.6	0.9	2.5	-1.6	24.4	27.1	-2.7	6.4	10.5	-4.1	34.1	40.9	-6.8
	Do. (South)	3.9	1.0	+2.9	3.1	4.8	-1.7	26.9	31.4	-4.5	16.4	14.0	+2.4	50.3	51.2	-0.9
	Madras (South)	4.7	1.9	+2.8	8.8	7.7	+1.1	25.8	19.8	+6.0	13.9	13.3	+0.6	53.2	42.7	+10.5

The distribution of rainfall in India month by month during the year 1891 has been fully described in the monthly reviews under the heading "Rainfall."

The more important features and irregularities in the distribution of the rainfall season by season during the year 1891 are pointed out in the following paragraphs:—

1.—Cold weather period.—It was excessive in Upper India, more especially in the districts bordering on the Afghan mountains and in the Himalayas. The North-West Punjab received an average of 7.4 inches, or double its normal amount. The distribution of the excess indicates that the snowfall of the period was also excessive over the whole of the adjacent mountain area, more especially to the north of the Punjab. Cabul is stated

to have had a total of 40 feet of snow during the winter.

2nd.—The rainfall of the period was in slight defect in Rajputana, Central India, Kathiawar, and the North-Western Provinces (except the eastern districts).

3rd.—It was, on the other hand, in largish excess in Bihar, Chota Nagpur and Bengal, over the greater part of which the rainfall was from 75 to 150 per cent. above the normal.

4th.—The rainfall was in moderate excess in the east coast districts of Madras (south of Nellore) and in South Madras. The excess was most marked in the south central districts (*i.e.*, Coimbatore, etc.), which received an average of 2.91 inches, the normal being only .55 inch.

5th.—Over the remainder of India the rainfall was small in amount, and the variations from the normal generally small and of little importance. The precipitation in the hill districts and in the submontane districts of the Punjab and of the North-Western Provinces was, as

has been pointed out, the heaviest that has occurred for many years in these districts. The following data for selected stations for the period from the 1st of December 1890 to the 31st of March 1891 give a more complete view of the excess than the averages in the tables:—

Province.	District.	Station.	RAINFALL.				Total rainfall, December 1st 1890 to 31st March 1891.	Normal rainfall, December 1st to 31st March.	Variation of period from normal.
			December.	January.	February.	March.			
PUNJAB	Simla	Kilba	4'05	5'67	9'48	7'26	26'46	21'09	+ 5'37
		Kot Khai	0'88	3'21	14'00	3'96	22'05	9'22	+ 12'83
	Gurdaspur	Dalhousie	7'65	0'55	2'86	5'77	16'83	13'58	+ 3'25
	Kangra	Kulu	6'43	4'63	7'89	6'61	25'56	15'26	+ 10'30
		Plach	2'41	4'37	5'55	2'92	15'25	9'84	+ 5'41
	Shahpur	Naushahra	2'10	5'10	2'70	4'00	13'90	3'34	+ 10'56
		Miani	1'22	2'70	1'90	2'96	8'78	3'90	+ 4'88
	Hazara	Abbottabad	5'19	4'76	9'45	4'32	23'72	13'70	+ 10'47
	Kohat	Kohat	1'53	4'66	2'77	3'74	12'70	5'00	+ 7'70
	Peshawar	Peshawar	2'33	4'51	2'81	1'80	11'45	5'07	+ 6'38
		Mardan	3'20	5'07	3'70	1'39	13'36	5'66	+ 7'70
	Rawalpindi	Attock	2'23	2'44	4'46	1'10	10'23	5'89	+ 4'34
		Murree	9'35	7'14	2'40	14'00	25'75	11'84	+ 13'91
NORTH-WESTERN PROVINCES	Sialkot	Sialkot	3'74	6'46	2'20	2'81	15'21	5'92	+ 9'29
	Gujranwala	Gujranwala	2'63	4'15	1'27	2'70	10'75	4'47	+ 5'28
	Amritsar	Amritsar	2'60	3'59	0'41	2'30	8'90	3'81	+ 5'09
	Dehra Dun	Mussoorie	1'98	3'17	3'25	5'93	14'33	8'95	+ 5'38
	Kumaun	Pithoragarh	0'57	3'96	4'21	3'02	11'76	6'93	+ 4'83
		Champawat	0'90	3'84	6'21	5'65	16'61	8'90	+ 7'71
		Haldwani	0'40	3'15	1'00	3'30	7'85	6'46	+ 1'39
BALUCHISTAN	Baluchistan	Kelat	3'11	3'43	7'21	1'63	15'38	5'80	+ 9'56
		Quetta	3'66	3'16	4'00	0'58	11'40	5'86	+ 5'54

II.—Hot weather period.—The chief features of this period were the excessive rain in March over the greater part of Northern India (more especially Bihar) and the delay in the advance of the monsoon rains in May. The following were the most noteworthy features in the distribution of the rainfall of the period:—

(1) Rainfall was largely below the average in Burma and Assam. The deficiency for the whole of Burma exceeded 50 per cent., and in Assam 15 per cent.

(2) It was very considerably in excess in Bengal, Bihar, Chota Nagpur and the eastern districts of the Central Provinces.

The following gives data for these areas:—

District.	RAINFALL.		
	Total rainfall, March to May 1891.	Variation from normal.	Excess expressed as percentage.
	Inches.	Inches.	
Eastern Bengal	20'89	+ 2'47	+ 13
Deltaic do.	14'34	+ 2'88	+ 25
Central do.	14'08	+ 6'75	+ 82
North do.	17'79	+ 0'19	+ 1
Orissa	9'13	+ 2'68	+ 41
Chota Nagpur	10'70	+ 6'01	+ 126
Bihar, South	6'25	+ 3'70	+ 146
Do. North	7'74	+ 3'48	+ 81
Central Provinces, East	7'92	+ 5'50	+ 228

The rainfall was most excessive (relatively to the normal)

in the eastern districts of the Central Provinces, Chota Nagpur and South Bihar, over which areas two to five times the normal amount of the season was received.

(3) The rainfall was almost as largely in excess (relatively to the normal) in the North-Western Provinces and the Punjab. The following gives data:—

District.	RAINFALL.		
	Total actual rainfall, March to May 1891.	Variation from normal.	Excess expressed as percentage.
	Inches.	Inches.	
North-Western Provinces (East)	1'73	+ 0'71	+ 69
Oudh (South)	3'09	+ 1'98	+ 180
Do. (North)	4'32	+ 2'60	+ 151
North-Western Provinces (Central)	2'38	+ 1'50	+ 170
Do. do. (West)	2'20	+ 1'16	+ 112
Do. do. (Submontane)	3'38	+ 0'64	+ 23
Pnnjab (South)	2'63	+ 1'27	+ 93
Do. (Central)	3'17	+ 1'76	+ 125
Do. (Submontane)	2'98	+ 0'58	+ 22
Do. (North-west)	4'82	+ 0'56	+ 13
Do. (West)	1'88	+ 0'29	+ 18

(4) The rainfall was more or less in defect over the whole of the west coast districts and in Madras, the deficiency being greatest in those districts which usually receive rain from the advance of the monsoon in the last fortnight of May.

The following gives data for the districts in which the

deficiency was absolutely and relatively to the normal largest:—

METEOROLOGICAL DISTRICT.	RAINFALL.		
	Total actual rainfall, March to May 1891.	Variation from normal.	Deficiency expressed as percentage.
	Inches.	Inches.	
Madras East Coast (South)	2'00	—2'28	—53
Do. do. (Central)	0'85	—1'31	—61
Do. (Central)	1'30	—2'22	—63
Do. (South Central)	5'45	—1'46	—21
Malabar	15'48	—1'89	—11
Bombay (Konkan)	1'11	—2'34	—67
Khandeish	0'08	—2'03	—96
Berar	0'65	—0'89	—58
Coorg	8'81	—3'45	—27

The deficiency was small in Malabar, but was large in other districts, the deficiency increasing in relative amount northwards to the Konkan, Khandesh and Central Madras. It was almost entirely due to the prolonged delay in the advance of the monsoon, and those districts which in normal years receive their first burst of rain in the last week of May obtained practically none in May 1891.

The rainfall in Rajputana, Central India, etc., is always small in amount during this period, and of little importance.

III.—*South-west monsoon period.*—The distribution of the rainfall of the third period of the year was characterized by several striking features. The Bay current was late in being established, and was diverted more largely than usual, 1st, to Burma and, 2nd, to the North-Western Provinces. The Bombay current was greatly delayed, and was not fully established until the middle of July. It was during the months of August and September more largely directed than usual to the area including the Central Provinces, Berar and the adjacent districts of Madras and the North-Western Provinces. The following gives the most important features:—

- (1) The rainfall of the period was in moderate to large excess in Tenasserim, Arakan and Lower Burma. The following gives data for that area:—

METEOROLOGICAL DISTRICT.	RAINFALL.		
	Total actual rainfall, June to October.	Variation from normal.	Excess expressed as percentage.
	Inches.	Inches.	
Tenasserim	204'90	+43'79	+26
Lower Burma	100'90	+23'47	+28
Central do.	76'94	+1'63	+2
Arakan	164'53	+8'04	+5

The data show that the excess was large in Tenasserim and Lower Burma. The rainfall was practically normal in amount in Arakan and Central Burma. It was probably more or less in defect in Upper Burma, but normal data for that province are as yet wanting.

- (2) The total rainfall of this period was more or less

considerably in defect in North-Eastern India, i.e., Bengal, Assam, Bihar, Chota Nagpur and Orissa. The following gives data:—

METEOROLOGICAL DISTRICT.	RAINFALL.		
	Actual, June to October 1891.	Variation from normal.	Deficiency expressed as percentage.
	Inches.	Inches.	
Assam (Surma)	107'83	—20'44	—16
Do. (Bhramaputra)	44'21	—13'58	—23
Bengal (East)	49'06	—25'61	—34
Do. (Deltaic)	34'40	—13'00	—27
Do. (Central)	32'17	—14'99	—32
Do. (North)	51'89	—35'41	—40
Bihar (North)	31'73	—14'17	—31
Do. (South)	28'41	—10'85	—27
Chota Nagpur	38'02	—8'21	—18
Orissa	44'74	—4'50	—9

These figures are very consistent and show that the deficiency was most marked in North Bengal and decreased in percentage amount slowly southwards and rather rapidly east and west. The deficiency averaged 40 per cent. in North Bengal and was less than 20 per cent. in Assam (Surma) and in Chota Nagpur and Orissa.

In a portion of this area, more especially North Bengal and Bihar, the rainfall was not only very deficient but was very unfavourably distributed in time, the rains coming to an abnormally early termination in the beginning of September. This was especially the case in the districts of Durbhanga, Mozufferpore, Patna, Monghyr and Bhagulpore, which received very little rain after the first week of September.

- (3) The rainfall of this period was more or less considerably in excess in the Central Provinces, Berar and the North-Western Provinces (excepting the eastern districts bordering Bihar).

The following gives data for this area of excessive rainfall:—

METEOROLOGICAL DISTRICT.	RAINFALL.		
	Actual, June to October 1891.	Variation from normal.	Excess expressed as percentage.
	Inches.	Inches.	
Oudh (North)	36'95	+0'73	+2
Do. (South)	34'23	+0'51	+2
North-Western Provinces (Submontane)	42'86	+3'82	+10
North-Western Provinces (West)	32'99	+5'68	+21
Do. do. (Central)	34'67	+3'44	+11
Central Provinces (West)	45'60	+6'87	+18
Do. do. (Central)	61'82	+12'66	+26
Do. do. (East)	51'56	+5'49	+12
Berar	37'98	+4'68	+14

The centre of this area of heavy and excessive rainfall included the central districts of the Central Provinces, more especially the Narsingpur, Chindwara, Seoni and Balaghat districts, for which data are given in the follow-

ing table, from which it will be seen the excess was chiefly due to abnormally heavy precipitation in September :—

STATION.	VARIATION FROM NORMAL OF RAINFALL IN					TOTAL.
	June.	July.	August.	September.	October.	
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
Narsingpur .	-6.17	-1.62	-2.07	+46.20	-1.40	+34.94
Chindwara .	-6.91	+9.99	-2.62	+12.91	-2.08	+11.29
Seoni .	-6.53	+11.06	+4.68	+22.87	-0.72	+31.36
Balaghat .	-7.66	-1.85	+1.84	+10.62	-1.54	+1.41

- (4) The rainfall of the period was in slight to moderate defect (*i.e.* less than 20 per cent.) in Mysore, Coorg, the Konkan, Bombay, Deccan, Khandeish, Guzerat, Kathiawar and Central India. It was, on the other hand, very considerably in defect in Rajputana, Sind and the greater part of the Punjab, for which data are given in the following table :—

METEOROLOGICAL DISTRICT.	RAINFALL.		
	Actual, June to October 1891.	Variation from normal.	Deficiency expressed as percentage.
	Inches.	Inches.	
Rajputana (East)	18.48	-6.76	-27
Do. (West)	7.38	-5.21	-42
Sind	1.02	-3.33	-77
Punjab (South)	7.74	-3.57	-32
Do. (North-West)	11.12	-3.98	-26
Do. (West)	3.67	-1.94	-35
Do. (Submontane)	17.46	-6.10	-26

The deficiency was hence greatest relatively to the normal in Sind and West Rajputana, and also exceeded 30 per cent. in the South and West Punjab.

The rainfall was also largely below the normal over the greater part of Madras and Hyderabad (Deccan) as is shown by the following :—

METEOROLOGICAL DISTRICT.	RAINFALL.		
	Actual, June to October 1891.	Variation from normal.	Deficiency expressed as percentage.
	Inches.	Inches.	
Hyderabad (South)	14.16	- 8.49	-37
Madras (East Coast, North)	19.54	-10.46	-35
Do. (East Coast, Central)	15.86	-10.20	-39
Do. (Central)	8.25	-12.36	-60
Do. (East Coast, South)	18.52	- 4.05	-18

The deficiency was hence greatest in the central districts including Bellary, Cuddapah, Kurnool and North Arcot and the coast districts of Nellore and Kistna. The following gives complete data for these districts :—

REVENUE DISTRICT.	JUNE.			JULY.			AUGUST.			SEPTEMBER.			OCTOBER.			WHOLE PERIOD.		
	Actual.	Variation from normal.	Variation expressed as percentage.	Actual.	Variation from normal.	Variation expressed as percentage.	Actual.	Variation from normal.	Variation expressed as percentage.	Actual.	Variation from normal.	Variation expressed as percentage.	Actual.	Variation from normal.	Variation expressed as percentage.	Actual.	Variation from normal.	Variation expressed as percentage.
	Inches.	Inches.		Inches.	Inches.		Inches.	Inches.		Inches.	Inches.		Inches.	Inches.		Inches.	Inches.	
Bellary	2.00	-0.90	-31	1.15	-1.47	-56	2.07	-1.59	-40	1.06	-4.07	-79	2.05	-2.71	-60	8.33	-10.74	-56
Cuddapah	1.10	-1.20	-52	1.62	-1.26	-43	2.98	-1.39	-32	2.76	-2.38	-46	3.29	-3.24	-49	11.75	- 9.47	-44
Kurnool	2.98	-0.02	-1	2.40	-2.32	-50	3.27	-1.94	-37	1.86	-3.85	-70	2.93	-2.37	-45	13.44	-10.50	-44
North Arcot	2.35	-0.49	-17	0.92	-2.17	-70	3.63	-1.75	-33	4.27	-1.10	-20	8.07	+0.68	+9	19.24	- 4.83	-20
Nellore	0.56	-1.09	-70	1.65	-0.80	-32	1.85	-1.21	-40	3.22	-0.39	-10	5.26	-4.50	-46	12.54	- 7.99	-39
Kistna	1.70	-2.53	-60	5.08	-0.21	-4	4.40	-1.44	-25	6.26	+0.47	+8	2.22	-3.99	-64	19.66	- 7.70	-28

Madras, South and South Central, had a slight to moderate excess during this period, chiefly due to heavy rain in the month of October.

IV.—Retreating south-west monsoon period.—The

rainfall of the period was in defect except in the districts of Orissa, Bengal and Burma affected by the two cyclonic storms of November, and in South Madras.

(a) Burma, South and East Bengal, Orissa and Assam

(Surma) received larger amounts than the normal. The following gives data :—

METEOROLOGICAL DISTRICT.	RAINFALL.		
	Actual, November and December.	Variation from normal.	Excess expressed as percentage.
	Inches.	Inches.	
Tenasserim	4.05	+2.85	+237
Lower Burma	5.02	+2.04	+68
Central Burma	4.43	+2.77	+165
Arakan	5.32	+2.38	+80
Assam (Surma)	2.85	+1.64	+135
Orissa	6.89	+5.21	+310
Bengal (Deltaic)	0.95	+0.37	+64
Do. (Central)	0.98	+0.54	+123

(b) Chota Nagpur, Bihar, the North-Western Provinces, Punjab, Rajputana, Central India, the Central Provinces, Hyderabad and Bombay received actually or practically no rain. This period is always a dry period in these areas, but was even drier than usual, the deficiency exceeding (slightly) an inch in the North-West Punjab and hill districts, Bombay, Khandesh and Berar.

(c) The rainfall of the period was chiefly determined to the more southern districts of Madras, which hence received a slight to moderate excess. Over the remainder of Madras, and in Mysore

and Coorg there was a large deficiency. The following gives data :—

METEOROLOGICAL DISTRICT.	RAINFALL.		
	Actual, November and December.	Variation from normal.	Variation expressed as percentage.
	Inches.	Inches.	
Madras (East Coast, Central)	1.55	-6.95	-81
Do. (Central)	0.74	-1.17	-59
Do. (East Coast, North)	0.61	-3.29	-84
Do. (South Central)	3.86	-1.34	-26
Mysore	0.62	-1.88	-75
Coorg	2.39	-1.22	-34

The deficiency was large and serious in the East Coast districts from Chingleput northwards and in the central districts, over the greater part of which areas less than one-fifth, or 20 per cent., of the normal rainfall was received. The deficiency emphasized the drought which had prevailed during the preceding period in the central districts and the coast districts of Nellore and Kistna. The following gives complete data for these districts :—

REVENUE DISTRICT.	NOVEMBER.			DECEMBER.		
	Actual rainfall.	Variation from normal.	Deficiency expressed as percentage.	Actual rainfall.	Variation from normal.	Variation expressed as percentage.
	Inches.	Inches.		Inches.	Inches.	
Vizagapatam	0.52	-2.68	84	0.04	-1.02	-96
Godavari	0.16	-3.01	95	0.02	-0.65	-97
Kistna	0.18	-2.97	94	Nil	-0.52	-100
Nellore	1.46	-7.12	83	2.49	-0.23	-9
Cuddapah	0.61	-3.47	85	0.56	-0.42	-44
Bellary	0.57	-0.73	60	0	-0.16	-100
Kurnool	0.24	-1.45	86	0	-0.31	-100
Chingleput	4.76	-6.70	58	7.94	+2.91	+56
North Arcot	2.89	-5.12	64	4.37	+1.40	+50

Concluding Summary.

The preceding remarks have shown that the more important features of the meteorology of the year were very broadly marked.

The cold weather was characterized by unusually heavy rain in Northern India, more especially in the Punjab and North-Eastern India, and by excessive snowfall in the Himalayas. This feature began to be exhibited in the preceding months of November and December, and was persistent during the whole cold weather of 1890-91, and was hence probably due to conditions initiated at the termination of the south-west monsoon rains in September 1890. It has already been stated that there were no peculiar features of the pressure conditions at the level of the plains in India or in Northern India which could suggest an explanation of the excessive precipitation of the period. On the other hand, the pressure data show that there was

a large and steady deficiency of pressure at the level of the hill stations in Northern India (as compared with the neighbouring plains stations). The deficiency was most marked at the stations of Leh and Quetta, thus suggesting that it was due to conditions in the higher atmosphere which were probably more pronounced in the region of Central Asia to the north and north-west of India than in India itself.

Recent experience has shown that continued large deficiency of pressure at the hill stations in Northern India relative to the adjacent plains is an almost invariable feature of a cold weather in which the rains are excessive in Northern India and snowfall above the normal in the Himalayan area, and hence may be used as an indication of the character of the winter. It may also be pointed out that this abnormal feature harmonizes with the fact that

the winter precipitation is due to cyclonic storms which have their chief development in the middle and upper atmospheric strata over India.

I have also pointed out in previous annual reports a peculiar feature of these cold weather storms. The primary storms are shallow and usually extensive depressions which apparently form sometimes in Rajputana, sometimes in Sind or Baluchistan and sometimes apparently advance across Persia and Baluchistan. There is a marked tendency for these storms to develop when they cross India, which they usually do in an easterly direction at the head of the Peninsula, and also to give rise to deep short-lived secondary depressions in the Punjab. The indraught to these secondary depressions in the Punjab necessarily diminishes the rainfall due to the primary depressions. Hence there is a marked tendency, when the primary depressions give rise to a larger number of secondary depressions in the Punjab than usual, for the precipitation of the period to be in defect in Rajputana, Central India and the Central Provinces (and sometimes in the North-Western Provinces), when it is excessive in the Punjab due to these secondary depressions. This was the case to a marked extent in the cold weather of 1890-91. The number of primary depressions was not much larger than the usual. They however gave rise to numerous subsidiary depressions in the North Punjab, etc. The following shows that the distribution of rainfall was in accordance with the preceding statement:—

METEOROLOGICAL DISTRICT.	VARIATION OF THE AVERAGE ACTUAL RAINFALL FROM THE NORMAL IN		
	January 1891.	February 1891.	Whole period.
	Inches.	Inches.	Inches.
Punjab (South)	+0.89	-0.41	+0.48
Do. (Central)	+0.73	-0.65	+0.08
Do. (Submontane)	+2.03	-0.07	+1.96
Do. (Hill)	+0.21	+1.35	+1.56
Do. (North-West)	+2.34	+1.36	+3.70
Do. (West)	+0.48	+0.37	+0.85
N.-W. Provinces (Submontane)	+0.25	-0.51	-0.26
Do. (West)	-0.17	-0.39	-0.56
Do. (Central)	-0.19	-0.23	-0.42
Do. (East)	+0.37	-0.18	+0.19
Oudh (North)	+0.14	-0.35	-0.21
Do. (South)	+0.06	-0.18	-0.12
Bihar (South)	+0.89	+0.01	+0.90
Do. (North)	+0.38	+0.50	+0.88
Sial	+0.16	+0.06	+0.22
Rajputana (West)	+0.08	-0.14	-0.06
Do. (East) C. I. (West)	+0.08	-0.18	-0.10
Central India (East)	+0.04	-0.23	-0.19
Central Provinces (West)	-0.09	+0.38	+0.29
Do. (Central)	-0.34	+0.21	-0.13
Do. (East)	-0.05	+0.13	+0.08

The prolonged stormy weather in Northern India and the excessive precipitation influenced the meteorological conditions of India during the succeeding hot weather in the manner indicated by theory and confirmed by

experience. Temperature was very considerably in defect, and pressure was more or less largely in excess. These features were most largely developed in the mountain districts bordering Upper India and the adjacent plains, and diminished in amount southwards and eastwards. The temperature and pressure conditions at the end of May were such as usually obtain in the beginning of the month, and hence the establishment of the pressure and other conditions necessary to the great and permanent advance of the humid currents from the equatorial belt over the Indian seas into India was considerably delayed. A feeble temporary advance occurred in the first week of June along the west coast, but its force was slight and quickly spent. Meanwhile the hot weather in its most intense form continued in the interior, and under the influence of the protracted hot and dry weather conditions in the interior pressure gave way rapidly in June, and steep gradients were established in the last week of that month. This was followed by the permanent advance of the humid currents from the adjacent sea areas into India and their gradual extension into the interior. They advanced somewhat more slowly than usual, and it was not until the fourth week of July that the conditions of high humidity, moderately high and fairly uniform temperature and frequent rain were established in Upper India. The monsoon currents continued with unusual steadiness from this period until the first week of October. The rainfall of these two months was so heavy that it practically made up for the deficiency in June and July, and the rainfall of the monsoon period was on the average of the whole of India in very slight defect.

The chief features of the south-west monsoon rainfall were—

- Moderate excess in Tenasserim in Burma.
- Large excess in the North-Western Provinces Central Provinces, Berar, Central India, and East Rajputana (*i.e.*, Ulwar, etc).
- Largish deficiency in Bengal and Bihar.
- Largish deficiency in Sind, West and Central Rajputana, and the West and South Punjab.
- Largish deficiency in the central coast districts and central districts of Madras.

These peculiarities in the distribution of the rainfall are in part explicable by abnormal features in the pressure distribution persistent for some time previously to the advent of the rains, and partly to actions resulting from the peculiar features of the previous hot and cold weather periods, which are very faintly, if at all, indicated by the pressure conditions.

The following gives a brief statement of the more important features which were apparently influential in determining the distribution of rainfall:—

- Pressure was in relative defect in June and to a less extent in May in Lower Burma and Tenasserim. The months of April and May had

been characterised by excessive temperature in that area. The following gives data :—

STATIONS.	VARIATION OF MEAN MONTHLY TEMPERATURE FROM NORMAL IN	
	April.	May.
Mergui	—0·3	+0·8
Moulmein	+2·5	+4·4
Toungoo	+2·6	+4·1
Rangoon	+1·2	+5·6

The local conditions in Burma were hence favourable for an early advance of the monsoon and for a stronger tendency than usual of the monsoon current to that area. This was very strongly shown by the increased westing of the winds in June at Port Blair and the Burma coast and was continued throughout the season. The following data for two stations, Port Blair and Diamond Island, show the persistent westing of the winds, and hence the greater diversion of the Bay current to Tenasserim and Lower Burma than usual :—

MONTH.	PORT BLAIR.			DIAMOND ISLAND.		
	Mean wind direction.	Normal wind direction.	Westerly deflection.	Mean wind direction.	Normal wind direction.	Westerly deflection.
June	S 63° W	S 38° W	25°	S 57° W	S 32° W	25°
July	S 59° W	S 44° W	15°	S 49° W	S 41° W	8°
August	S 61° W	S 43° W	18°	S 47° W	S 44° W	3°
September	S 68° W	S 43° W	25°	S 68° W	S 39° W	29°

These facts apparently warrant the conclusion that the Bay of Bengal current was more largely diverted to Lower Burma and Tenasserim than usual during the west monsoon period.

It is also possible, if not probable, that this abnormal diversion may have been an important factor in determining the formation of the cyclonic storms in the Gulf of Siam which passed into the Indian area and were both remarkable for their longevity.

- (b) The following were the conditions determining the excessive rainfall in the Central Provinces, North-Western Provinces, and adjacent districts of Central India and East Rajputana. There was in April and May a slight tendency to a local deficiency of pressure in the area represented by Hoshangabad, Saugor, Sutna, and Allahabad. The local deficiency was so slight that in the forecast published in the first week of June all that could then be said of it was "that conditions are slightly less favourable in Bihar and the eastern districts of the North-Western Provinces, but it

is probable they will obtain about their normal rainfall. The local depression in the North-Western Provinces may, if it intensifies (which, however, does not appear, so far as can be judged from the other conditions, to be probable), determine heavy local rain to the central and eastern districts of the North-Western Provinces." It was even less distinctly marked in June, but began to come into prominence in July, the local deficiency in that month being most marked at Allahabad and Sutna. The Central Provinces was the area of greatest excess of temperature in June and the North-Western Provinces in July. When the Bombay monsoon current was established, it advanced more easterly and with less northing across Central India and the north of the Peninsula. The result of this greater determination than usual of the Bombay current towards the Central Provinces and North-Western Provinces was to slowly intensify the previous conditions. The very shallow local depression extended southwards into the Central Provinces and intensified to such an extent as to be the most conspicuous feature in the pressure distribution of the month of September. This intensified local depression acted as a sink for both currents, and received excessive rain in August and September, and more especially in September.

- (c) The deficient rainfall in Bengal, Bihar and Chota Nagpur was due in the earlier monsoon months of June and July to the weakness of the Bay current and was moderate in amount. It was chiefly due in August and September to the increased indraught to the sink in the North-Western Provinces. The indraught to this area withdrew the humid winds more or less from North and East Bengal and gave increased air motion in West Bengal and Bihar—a condition as a rule, unfavourable to general rainfall. The deficiency was hence, as might be expected, under these conditions, most marked in North Bengal and East Bengal and was least in the districts of West Bengal, South Bihar, and Chota Nagpur, passed over by the intensified humid winds feeding into the sink in the North-Western Provinces and by the cyclonic storms of the period.
- (d) The pressure conditions in Upper India. Kathiawar, Guzerat, and West Rajputana in the hot weather months and also in June and July, were such as almost invariably precede and accompany decreased rainfall in those areas during the

south-west monsoon. Pressure was throughout the hot weather (March, April and May) locally in excess in Upper India, Rajputana and Central India. The excess was throughout these months greatest in the Indus Valley. During the month of June this area of local excessive pressure extended southwards to Kathiawar and Guzerat, and continued to form a more or less permanent feature until nearly the end of August. The effect of this was to give westerly winds with more or less northing during this period in Sind and West Rajputana, and to divert the humid winds of the Bombay current from those areas and to determine their advance in a more easterly direction (and with less northing) across the Peninsula and Central India than usual. Sind, Cutch, West Rajputana and Kathiawar were hence more largely under the influence of dry north-westerly winds than usual, and had deficient rainfall throughout the whole season.

(e) The causes of the deficiency in the greater part of Madras are less clear. The deficiency appears, however, to have been mainly due to the following causes and actions:—

(1) The monsoon currents in the Arabian Sea were unusually weak in June and confined to the extreme south of that sea area, hence they gave much lighter rain than usual to the Malabar Coast and southern districts of Madras in that month. They gave little or no rain to Canara or Konkan or to the Madras or Bombay Deccan districts during this period. Hence the rainfall accompanying the advance of the monsoon currents in June was confined to the southern districts of Madras, and was even there below its normal amount. The central and northern districts received little or no rain.

(2) After the monsoon currents were established in July they advanced and extended slowly to the Punjab, and were abnormally steady during the months of August and September. Hence, as the Deccan and Southern India usually have showery weather only in the intervals known as breaks in the rains in Northern India, this period was abnormally dry except in those districts of Hyderabad which shared to some extent in the heavy rainfall due to the sink in

the Central Provinces and adjacent districts of the North-Western Provinces and Central India.

(3) Hence the conditions for rainfall were unfavourable in Central Madras and the Madras Deccan, both at the commencement of the rains and after they were fully established.

A factor connected with the preceding was the very strong winds which prevailed throughout this period in the Deccan. Data have been given under the wind section, showing that the air movement during the months of August and September was from 20 to 40 per cent. on the average of the period above the normal. This increased strength of the winds in the Deccan and Southern India was probably due to the same general causes which determined the Bay current more largely and strongly to Tenasserim and Lower Burma. There was a slight increase of gradient from west to east across the Deccan and the Bay, but not sufficiently large to account for the great increase in the strength of the winds.

IV.—The rainfall of the fourth period was even more irregularly distributed than that of the previous period. The chief features were:—

- (1) Considerable excess in South Madras.
- (2) Great deficiency in Central and North Madras.
- (3) Almost entire absence of rain in North-Western and Central India.
- (4) Considerable excess in Orissa, South and East Bengal and Burma.

The conditions that determine the withdrawal of the monsoon currents from Northern India differ to some extent from one year to another, and are as yet imperfectly understood. They are, however, similar to those which accompany a general break in the rains. In both cases the withdrawal usually follows immediately a period of general rain over Northern India. When a burst of general rainfall during the south-west monsoon ceases pressure increases rapidly. This increase is in part at least due to the usual rebound that invariably follows heavy rainfall, and in the case of the final withdrawal of the monsoon currents from North-Western India in part to the seasonal changes in India and Central Asia. The pressure conditions thus established determine the extension of the next smaller bursts of rain.

In the present instance the steady continuous rain of the months of August and September and the first week of October was followed by a very rapid rise of pressure in Northern India, which established pressure conditions and gradients antagonistic to the re-establishment of the monsoon current in Northern India. This increase of pressure, due to the cessation of rainfall, was unequal in amount in different parts of the country, and was greatest

(relative to the normal) in the areas which had received excessive rainfall in September. Hence the whole of the Deccan was during the remainder of the year an area of excessive pressure.

The area of low pressure, which determined the directions of the monsoon currents and rainfall in the latter half of October, November, and December, hence occupied a very unusual position, lying between the South Coromandel Coast and Tenasserim. Hence the recurving south-west monsoon current in the Bay was directed to the south Coromandel Coast and gave heavy rainfall to the districts of Chingleput, South Arcot, Trichinopoly, Tanjore, Madura and Tinnevely.

In the intervals of fine weather and increasing pressure in South Madras during this period there was a marked tendency to the occurrence of cyclonic storms. Two intense storms appeared in the Bay during the month of November, which followed unusual tracks determined by the high pressure conditions prevailing in the Peninsula during their formation and existence. The two cyclonic storms, the tracks of which led one of them into Bengal and the other into Burma, gave general and opportune rain to these two provinces.

The high pressure barrier in the Deccan prevented, throughout the whole period, the diversion of any considerable portion of the retreating monsoon current to that area or to the coast districts of the Circars and Central Madras, and it was hence an area of partial or complete drought during the period.

The final withdrawal of the monsoon currents from the Bay area accompanied, and was followed by the establishment of pressure conditions which were opposite in character to those that had obtained during the preceding cold weather season. The excessive snowfall of that season was undoubtedly one of the most important factors in determining the meteorological conditions of India

during the hot weather months and the delay in the establishment of the monsoon. This snow accumulation in the Western Himalayas rapidly melted away during the dry hot weather months of June and July, and the depth of snow probably did not differ much from the normal in August and September, and undoubtedly had little or no direct influence in modifying the extension or strength of the currents in these months.

The following table gives the differences of the pressure variations for the pairs of stations named each consisting of a hill station and a neighbouring plain station:—

MONTH.	VERTICAL PRESSURE ANOMALY.						
	Leh and Lahore.	Murree and Peshawar.	Simla and Ludhiana.	Quetta and Jacobabad.	Ranikhet and Lucknow.	Mount Abu and Deesa.	Wellington and Trichinopoly.
August . . .	-.009	+019	-.004	+.038	+.004	-.013	+.032
September . . .	+.023	+016	+.010	+.042	+.033	+.013	+.039
October . . .	-.009	+.006	?	+.029	-.008	+.007	+.016
November . . .	+.113	+.054	+.037	+.054	+.016	+.022	+.026
December . . .	+.060	+.019	+.015	+.029	+.010	+.017	+.032
Mean of whole period .	+.036	+.023	-.004	+.038	+.011	+.009	+.029

The preceding data shew that the differences between the pressure variations at the hill stations and the neighbouring plain stations were small in amount in August September and October, and the vertical pressure anomalies were hence small and of little importance. There was, on the other hand, a large excess of pressure at the level of the hill stations shewn in the table by the positive vertical anomalies. The excess was very large at Leh and Quetta. Excessive pressure conditions at these stations, or large positive vertical anomalies, are almost invariably the antecedent of a drier and less disturbed cold weather than usual, and the cold weather of 1891-92 was an additional confirmation of this rule.

EXPLANATION OF PLATES.

PLATE I.—A chart of India shewing the 11 meteorological provinces and 51 districts of India.

PLATE II.—Chart shewing the tracks of the more important cyclonic storms of 1891 in the Indian area during the south-west monsoon, a brief summary of which is given on pages 457-460.

PLATE III.—Charts shewing the mean distribution of pressure at 10 A.M. and 4 P.M. in the months of January and April 1891. These charts and the charts of Plate IV were drawn up for a paper on the diurnal pressure and temperature changes in India which is in course of preparation. They are given here in order to shew the very large effect the rapid heating of the interior of India has in modifying the pressure distribution in India, and will, it is hoped, be interesting from this point of view. It should be remembered in comparing these charts that the hot weather conditions were even more strongly marked in the interior of India and more especially in the Peninsula in June than in May 1891.

PLATE IV.—Charts shewing the mean distribution of pressure at 10 A.M. and 4 P.M. in the months of May and June 1891.

PLATE V.—A chart of India shewing the variation of the rainfall of the months of January and February 1891 from the normal. This chart and the three following charts have been prepared to illustrate the data given in Table XX, page 471. These charts are drawn up in the same manner as the rainfall chart (Plate V) in the Monthly Weather Reviews of the year 1891.

PLATE VI.—A chart of India shewing the variation of the rainfall of the months of March to May 1891 from the normal.

PLATE VII.—A chart of India shewing the variation of the rainfall of the months of June to October 1891 from the normal.

PLATE VIII.—A chart of India shewing the variation of the rainfall of the months of November and December 1891 from the normal.

**Explanation.**

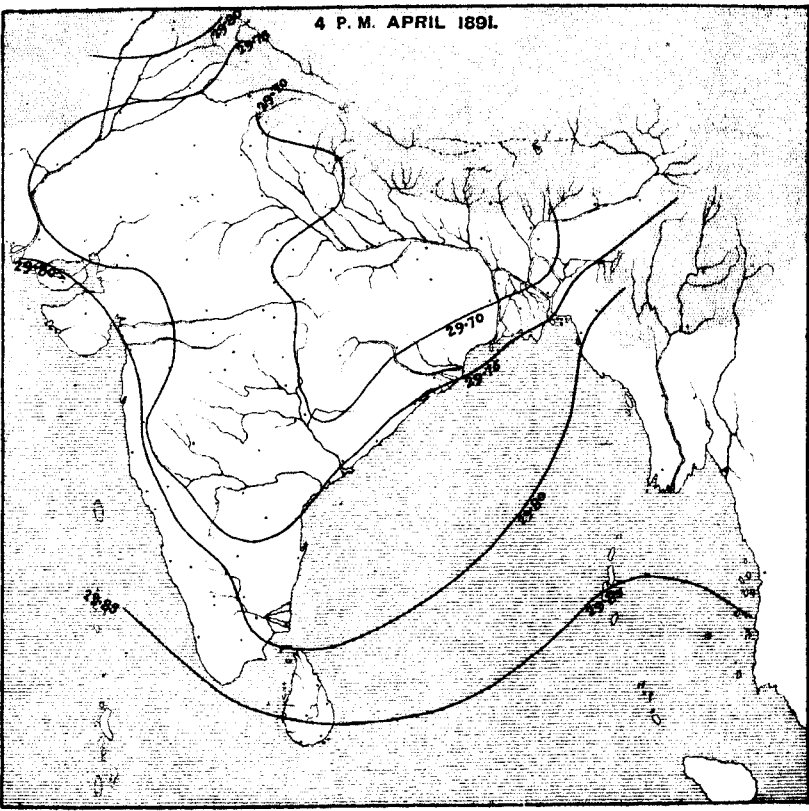
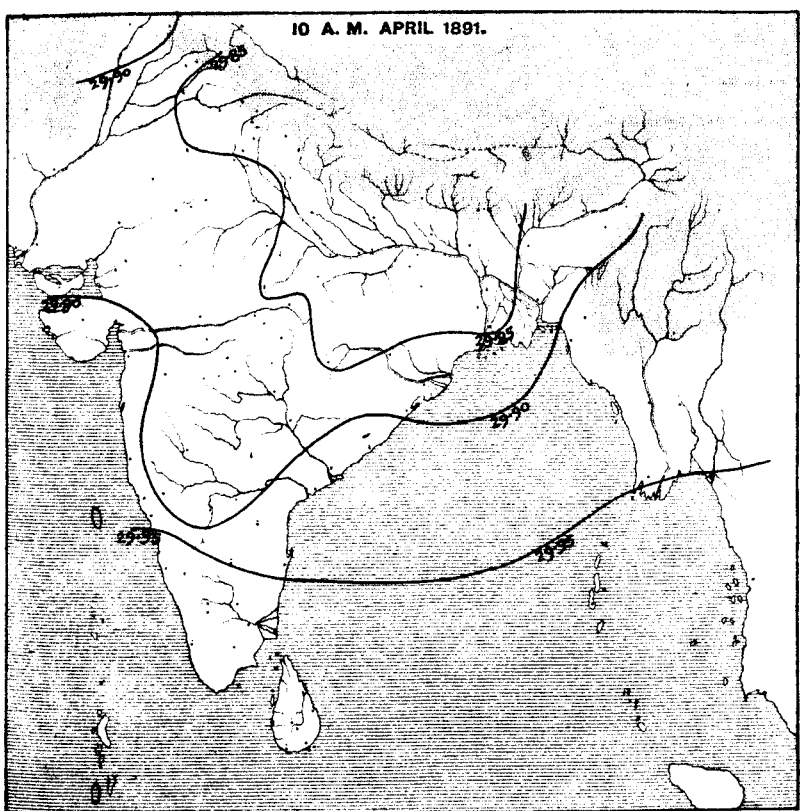
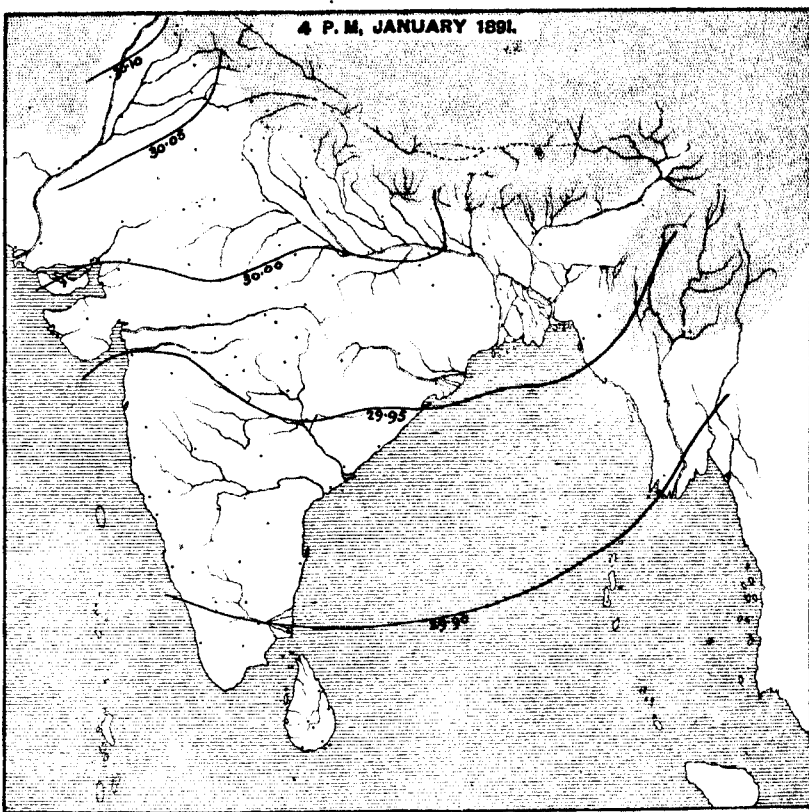
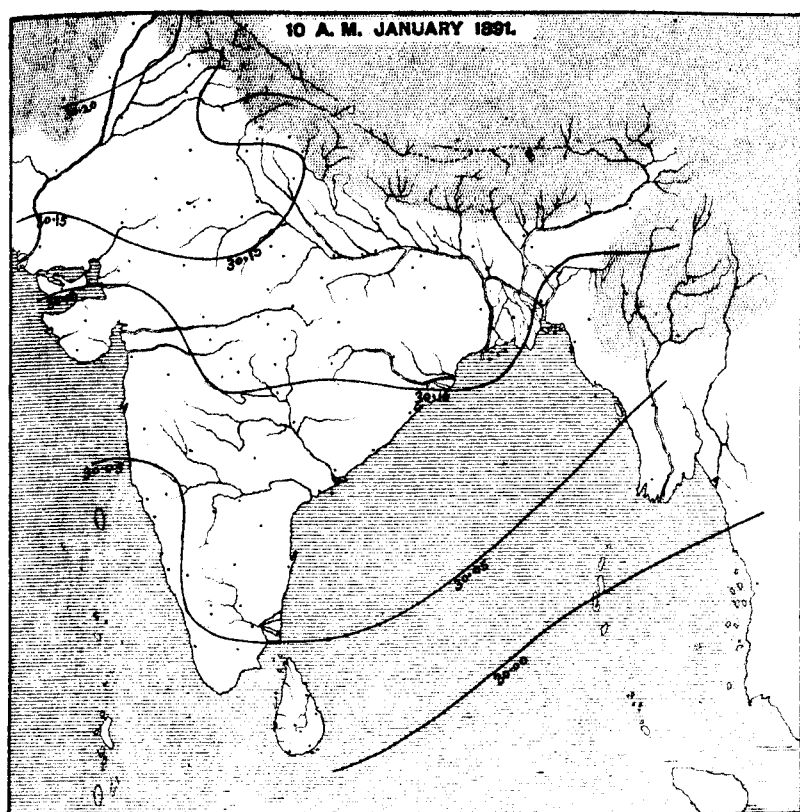
The name of the districts can be at once ascertained by referring in the following list to the number given near the right hand boundary of each district in small slanting figures.

1. Tenasserim	14. Behar (South)	27. Punjab (West)	40. Guzerat
2. Lower Burma	15. Do. (North)	28. Malabar	41. Kattiawar
3. Central do.	16. North Western Provinces (East)	29. Madras (South Central)	42. Sind
4. Upper do.	17. Ough (South)	30. Coorg	43. Central India (East)
5. Arakan	18. Do. (North)	31. Mysore	44. Rajputana (East) Central India (West)
6. Eastern Bengal	19. North Western Provinces (Central)	32. Konkan	45. Rajputana (West)
7. Assam (Surma)	20. Do. do. (West)	33. Bombay Deccan	46. East Coast (North)
8. Do. (Brahmaputra)	21. Do. do. (Submontane)	34. Hyderabad (North)	46(a). Do. do. (a)
9. Deltaic Bengal	22. Punjab (South)	35. Khandeish	47. Hyderabad (South)
10. Central do.	23. Do. (Central)	36. Berar	48. Madras (Central)
11. North do.	24. Do. (Submontane)	37. Central Provinces (West)	49. East Coast (Central)
12. Orissa	25. Do. (Hill Districts)	38. Do. (Central)	50. East Coast (South)
13. Chota Nagpore	26. Do. (North West)	39. Do. (East)	51. Madras (South)



Storms originating in Bay of Bengal, thus -----
Land formed Storm..... ".....

CHARTS SHEWING THE MEAN DISTRIBUTION OF PRESSURE AT 10 A.M.
AND 4 P.M. IN THE MONTHS OF JANUARY AND APRIL 1891.



CHARTS SHEWING THE MEAN DISTRIBUTION OF PRESSURE AT 10 A.M.
AND 4 P.M. IN THE MONTHS OF MAY AND JUNE 1891.

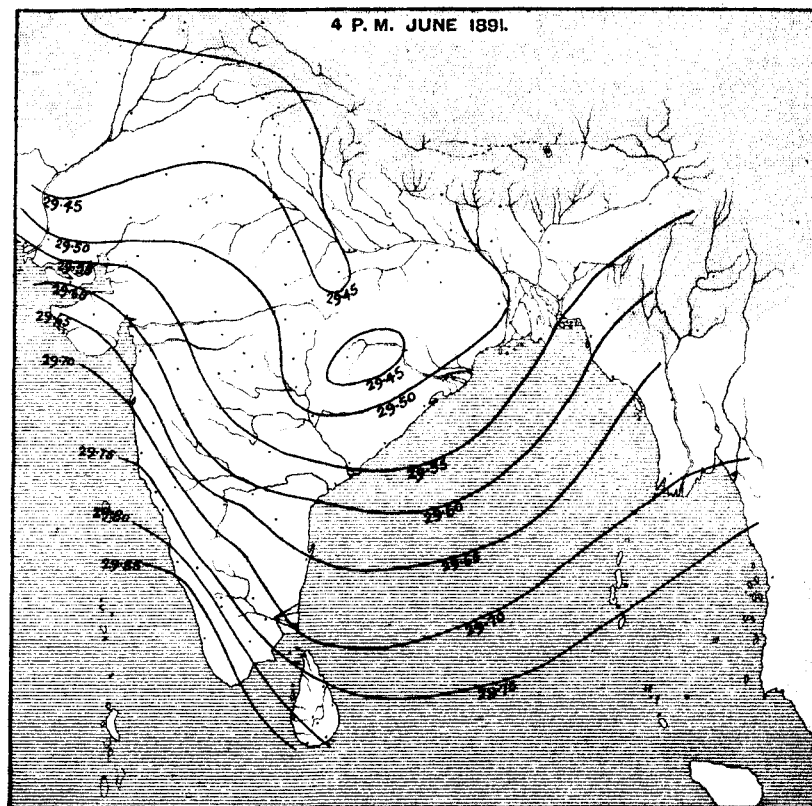
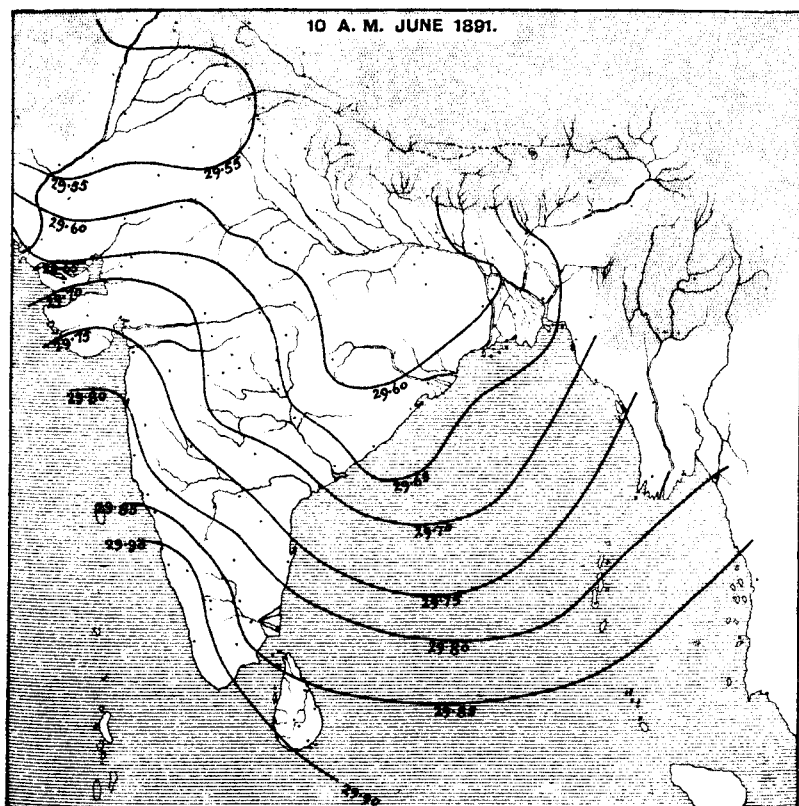
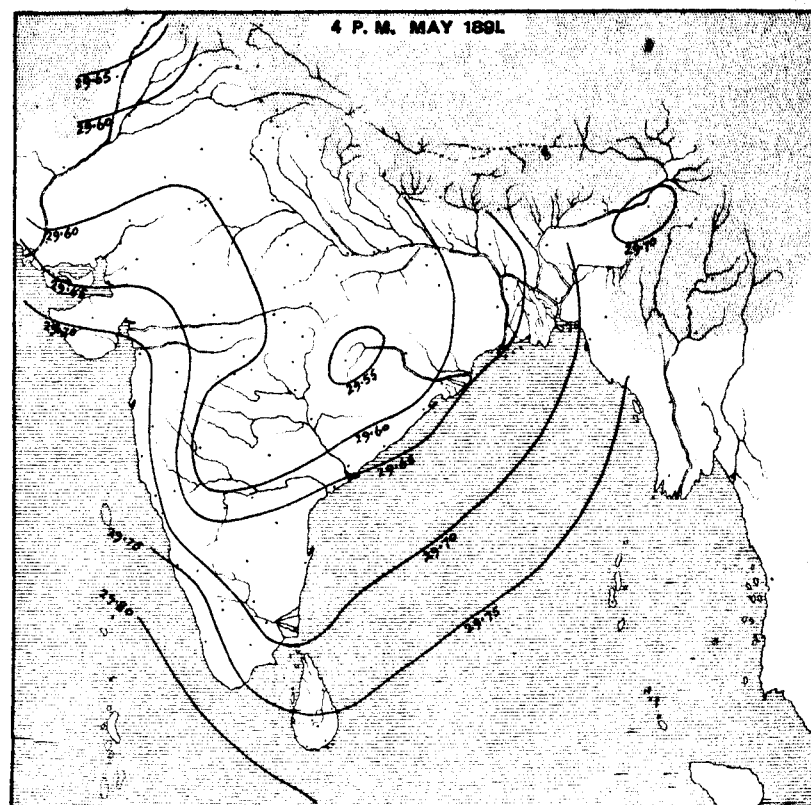
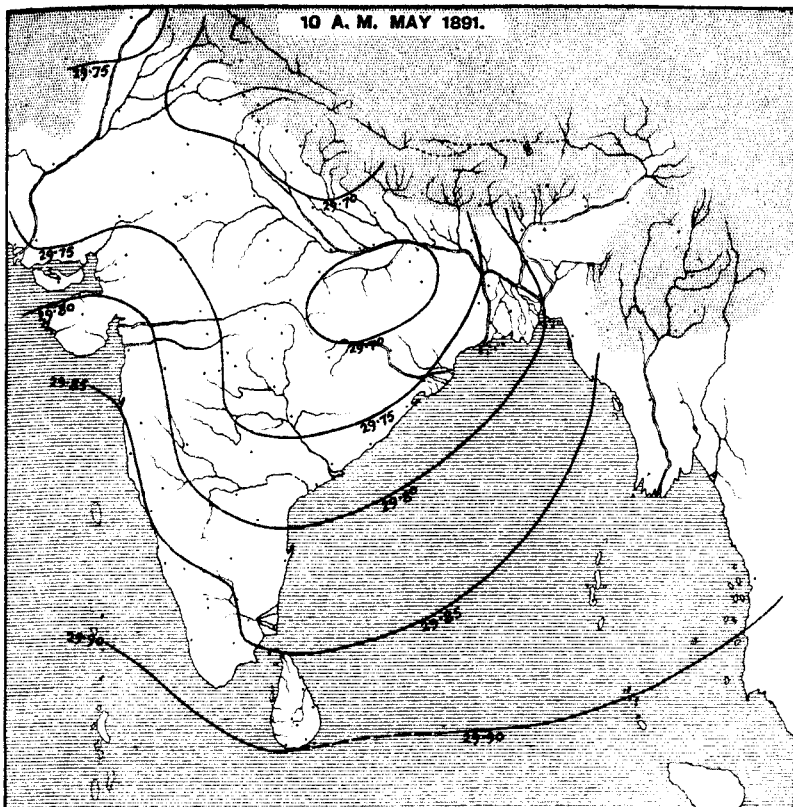


CHART OF INDIA

SHewing THE VARIATION OF THE RAINFALL
OF THE MONTHS OF JAN. & FEB. 1891
FROM THE NORMAL.

Scale 1 inch = 256 Miles



Explanation.

The Chart gives the variations of the rainfall of the month (to tenths of an inch) from the normal over the whole of India and Burma with the exception of Upper Burma, for which rainfall data have not been obtained for a sufficient number of years to furnish reliable and useful means. The country is divided into 51 areas over each of which the meteorological conditions are fairly uniform, and the staple crops similar in character; and the means (both actual and normal for the month) have been calculated, and the numbers given in the centre of each division (usually with a + or - sign attached) give the difference between the actual and normal mean rainfall of the district of the month. A plus sign indicates that the rainfall was in excess and a negative sign that it was in defect by the amounts indicated by the numbers to which the signs are attached. The name of the districts can be at once ascertained by referring in the following list to the number given near the right hand boundary of each district in small slanting figures.

1. Tenasserim	14. Behar (South)	27. Punjab (West)	40. Guzerat
2. Lower Burma	15. Do. (North)	28. Malabar	41. Kattiawar
3. Central do.	16. North Western Provinces (East)	29. Madras (South Central)	42. Sind
4. Upper do.	17. Oudh (South)	30. Coorg	43. Central India (East)
5. Arakan	18. Do. (North)	31. Mysore	44. Rajputana (East) Central India (West)
6. Eastern Bengal	19. North Western Provinces (Central)	32. Konkan	45. Rajputana (West)
7. Assam (Surma)	20. Do. do. (West)	33. Bombay Deccan	46. East Coast (North)
8. Do. (Brahmaputra)	21. Do. do. (Submontane)	34. Hyderabad (North)	46(a.) Do. do. (a)
9. Deltaic Bengal	22. Punjab (South)	35. Khandeish	47. Hyderabad (South)
10. Central do.	23. Do. (Central)	36. Berar	48. Madras (Central)
11. North do.	24. Do. (Submontane)	37. Central Provinces (West)	49. East Coast (Central)
12. Orissa	25. Do. (Hill Districts)	38. Do. (Central)	50. East Coast (South)
13. Chota Nagpore	26. Do. (North West)	39. Do. (East)	51. Madras (South)

CHART OF INDIA

SHEWING THE VARIATION OF THE RAINFALL
OF THE MONTHS OF MARCH TO MAY 1891
FROM THE NORMAL.

Scale 1 inch = 256 Miles



Explanation.

The Chart gives the variations of the rainfall of the month (to tenths of an inch) from the normal over the whole of India and Burma with the exception of Upper Burma, for which rainfall data have not been obtained for a sufficient number of years to furnish reliable and useful means. The country is divided into 51 areas over each of which the meteorological conditions are fairly uniform, and the staple crops similar in character; and the means (both actual and normal for the month) have been calculated, and the numbers given in the centre of each division (usually with a + or - sign attached) give the difference between the actual and normal mean rainfall of the district of the month. A plus sign indicates that the rainfall was in excess and a negative sign that it was in defect by the amounts indicated by the numbers to which the signs are attached. The name of the districts can be at once ascertained by referring in the following list to the number given near the right hand boundary of each district in small slanting figures.

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9. Deltaic Bengal	22. Punjab (South)	35. Khundeish	47. Hyderabad (South)
10. Central do.	23. Do. (Central)	36. Berar	48. Madras (Central)
11. North do.	24. Do. (Submontane)	37. Central Provinces (West)	49. East Coast (Central)
12. Orissa	25. Do. (Hill Districts)	38. Do. (Central)	50. East Coast (South)
13. Chota Nagpur	26. Do. (North West)	39. Do. (East)	51. Madras (South)

CHART OF INDIA

SHEWING THE VARIATION OF THE RAINFALL
OF THE MONTHS OF JUNE to OCT. 1891
FROM THE NORMAL.

Scale 1 inch = 250 Miles



Explanation.

The Chart gives the variations of the rainfall of the month (to tenths of an inch) from the normal over the whole of India and Burma with the exception of Upper Burma, for which rainfall data have not been obtained for a sufficient number of years to furnish reliable and useful means. The country is divided into 51 areas over each of which the meteorological conditions are fairly uniform, and the staple crops similar in character; and the means (both actual and normal for the month) have been calculated, and the numbers given in the centre of each division (usually with a + or - sign attached) give the difference between the actual and normal mean rainfall of the district of the month. A plus sign indicates that the rainfall was in excess and a negative sign that it was in defect by the amounts indicated by the numbers to which the signs are attached. The name of the districts can be at once ascertained by referring in the following list to the number given near the right hand boundary of each district in small slanting figures.

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9. Deltaic Bengal	22. Punjab (South)	35. Khandeish	47. Hyderabad (South)
10. Central do.	23. Do. (Central)	36. Berar	48. Madras (Central)
11. North do.	24. Do. (Submontane)	37. Central Provinces (West)	49. East Coast (Central)
12. Orissa	25. Do. (Hill Districts)	38. Do. (Central)	50. East Coast (South)
13. Chota Nagpore	26. Do. (North West)	39. Do. (East)	51. Madras (South)

CHART OF INDIA

SHEWING THE VARIATION OF THE RAINFALL
OF THE MONTHS OF NOV. & DEC. 1891
FROM THE NORMAL.

Scale 1 inch = 256 Miles



Explanation.

The Chart gives the variations of the rainfall of the month (to tenths of an inch) from the normal over the whole of India and Burma with the exception of Upper Burma, for which rainfall data have not been obtained for a sufficient number of years to furnish reliable and useful means. The country is divided into 51 areas over each of which the meteorological conditions are fairly uniform, and the staple crops similar in character; and the means (both actual and normal for the month) have been calculated, and the numbers given in the centre of each division (usually with a + or - sign attached) give the difference between the actual and normal mean rainfall of the district of the month. A plus sign indicates that the rainfall was in excess and a negative sign that it was in defect by the amounts indicated by the numbers to which the signs are attached. The name of the districts can be at once ascertained by referring in the following list to the number given near the right hand boundary of each district in small slanting figures.

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13. Chota Nagpore	26. Do. (North West)	39. Do. (East)	51. Madras (South)

Table

Abstract of observations taken at 8 A.M.,

METEOROLOGICAL PROVINCE OR DISTRICT.	STATION.	Height of station in feet.	PRESSURE 8 A.M. IN INCHES.							TEMPERATURE OF AIR.											
			Mean actual pressure (reduced to 32° of year.	Variation from normal.	Mean pressure of year reduced to sea-level and to constant gravity 45° Lat.	Highest pressure recorded during year.	Lowest pressure recorded during year.	Absolute range during year.	Mean monthly range of pressure.	Mean 8 A.M. of year.	Mean maximum of year.	Variation from normal of year.	Mean minimum of year.	Variation from normal of year.	Mean daily temperature of year.	Variation from normal of year.	Mean daily range of temperature.	Highest temperature observed during year.	Lowest temperature observed during year.	Absolute range during year.	Mean monthly absolute range.
I.—Burma Coast and Bay Islands.		...	...	—001	...	...	...	...	...	...	88.0	+0.6	72.7	+0.3	80.4	+0.5	15.4	...	...	38.5	23.6
BAY ISLANDS . .	Port Blair . . .	61	29.853	P	29.845	30.016	29.665	.351	.170	81.2	87.7	P	77.7	P	82.7	P	9.9	97.0	70.0	27.0	17.0
TENASSERIM . .	Mergui	96	.833	P	.860	.041	.669	.372	.176	78.3	87.6	P	68.5	P	78.1	P	19.0	98.1	54.9	43.2	26.5
	Tavoy	26	.929	P	.888	.099	.775	.324	.161	76.8	88.1	P	72.0	P	80.1	P	16.0	98.7	58.2	30.5	23.8
	Moulmein . . .	94	.833	+0.06	.867	.097	.622	.475	.197	77.4	88.9	+0.9	73.9	+2.0	81.4	+1.5	15.0	99.4	62.9	36.5	24.0
	Toungoo	181	.719	0	.846	29.993	.436	.557	.198	75.7	90.5	+0.4	71.0	+0.7	80.7	+0.6	19.5	106.7	50.6	56.1	29.7
LOWER BURMA . .	Rangoon	41	.074	—0.05	.853	30.078	.602	.476	.210	76.2	...	...	72.8	0	...	...	...	56.7	...	—	—
	Bassein	21	.891	+0.05	.850	.147	.589	.558	.215	76.8	88.7	+0.9	72.0	+0.1	80.4	+0.5	16.7	100.7	57.0	43.7	24.5
	Diamond Island .	41	.873	—0.06	.850	.104	.578	.526	.209	80.0	86.1	+0.6	72.0	3.1	79.1	—1.3	14.1	93.3	65.1	28.2	20.9
ARRAKAN	Akyab	20	.876	—0.04	.841	.162	.474	.688	.241	76.1	86.5	+0.3	74.0	+1.9	80.3	+1.1	12.6	100.1	57.2	42.9	22.3
II.—Burma, Inalnd . . . .		...	...	+009	...	...	...	...	...	...	90.3	+0.8	67.6	—1.7	...	—0.4	...	...	61.4	34.0	
CENTRAL BURMA . .	Thayetmyo . . .	134	.763	+0.09	.842	.048	.463	.585	.200	77.0	92.5	+0.8	67.9	—1.7	80.2	—0.4	24.6	110.7	42.9	67.8	35.9
UPPER BURMA . . .	Mandalay	P	.647	P	P	29.970	.316	.654	.237	77.4	33.9	P	70.9	P	82.3	P	22.6	110.4	51.5	58.9	34.6
	Kendat	P	.525	P	P	.852	.182	.670	.224	72.5	87.7	P	67.3	P	77.5	P	20.4	104.7	49.0	55.7	30.5
	Bhamo	P	.483	P	P	.788	.122	.666	.248	69.7	86.9	P	64.2	P	75.6	P	22.7	104.6	41.5	63.1	34.8
II.—Assam. . . . .		...	...	—002	...	...	...	...	...	...	83.9	+0.1	66.6	—0.6	75.3	—0.2	17.2	...	...	53.4	...
ASSAM (SURMA) . .	Silchar	104	.788	+0.05	.846	30.120	.387	.733	.252	72.2	87.0	+1.2	67.0	—0.4	77.0	+0.5	20.0	99.6	45.5	54.1	31.2
BRAHMAPUTRA . . .	Sibsagar	333	.566	—0.14	.854	29.996	.138	.758	.235	68.5	81.9	—0.4	65.4	—0.5	73.7	—0.4	16.5	96.6	44.1	52.5	26.8
	Dhubri	115	.760	+0.03	.832	30.123	.258	.865	.278	70.5	82.7	—0.4	67.5	—0.8	75.1	—0.6	15.2	101.5	47.8	53.7	25.0
IV.—Bengal and Orissa . . .		...	...	+	...	...	...	...	...	...	85.8	—0.1	69.5	...	78.0	0	16.9	...	...	55.6	27.8
EAST BENGAL . . .	Chittagong . . .	87	.800	+0.02	.836	30.094	.420	.674	.228	75.0	85.7	+1.4	69.1	—0.3	77.4	+0.6	16.5	94.7	46.5	48.2	25.6
	Lungleh	P	P	...	...	...	...	...	...	65.3	69.0	P	P	P	P	P	P	78.9	P	P	P
	Noakhally	43	.839	P	.829	.162	.433	.729	.246	75.3	84.6	P	68.8	P	76.7	P	15.8	92.3	44.0	48.3	26.7
	Comillah	35	.849	P	.833	.173	.443	.730	.244	74.3	85.8	P	68.1	P	76.9	P	17.7	97.3	45.1	52.2	28.3
	Serajgunj	4	.818	P	.814	.168	.378	.790	.252	73.1	85.5	P	67.4	P	76.5	P	18.2	104.0	43.3	60.7	29.4
	Dacca	22	.846	+0.06	.816	.186	.419	.767	.248	74.5	86.4	—0.2	69.9	—0.5	78.2	—0.3	16.5	97.6	48.7	48.9	25.8
	Barrisal	12	.856	+0.16	.813	.187	.434	.753	.248	76.4	85.6	+1.9	70.2	+0.5	77.9	+1.2	15.4	97.8	46.6	51.2	25.7
	Mymensingh . . .	55	.818	+0.10	.828	.161	.358	.803	.247	72.5	84.1	—0.6	67.9	+0.7	76.0	0	16.2	99.7	46.1	53.6	26.9
DELTAIC BENGAL . .	Furreedpore . . .	46	.839	P	.827	.187	.406	.781	.244	74.7	84.6	P	69.2	P	76.9	P	15.4	99.5	46.0	53.5	25.7
	Jessore	33	.828	+0.04	.808	.181	.400	.781	.256	75.1	86.7	—1.3	69.9	+0.1	78.3	—0.6	16.8	103.2	46.4	56.8	27.4
	Calcutta	21	.840	+0.09	.807	.211	.390	.821	.267	75.5	86.4	0	70.4	—0.1	78.4	—0.1	15.9	102.6	46.3	56.3	25.5
	Saugor Island . .	25	.831	+0.05	.801	.201	.382	.819	.269	77.0	85.3	—0.1	73.3	—0.3	79.3	—0.2	12.1	95.7	49.7	46.0	21.7
	Krisnaghar	47	.808	P	.805	.177	.371	.806	.253	75.2	87.9	P	68.9	P	78.4	P	19.0	105.8	42.3	63.5	30.6
	Midnapur	149	.709	P	.798	.075	.288	.787	.264	71.6	89.7	P	70.2	P	80.0	P	19.6	108.4	47.1	61.3	31.7

I.

at 153 stations in India, Burma, etc., in the year 1891.

WIND DIRECTION.									WIND VELOCITY.			HYGROMETRY, 8 A.M.		RAINFALL.						STATION.	METEOROLOGICAL PROVINCE OR DISTRICT.			
Number of Winds during year from									Mean velocity in miles per hour.	Normal.	Percentage variation.	Mean humidity of year.	Mean vapour tension of year.	Mean cloud amount of year.	Number of rainy days during year.	Normal number of rainy days.	Variation.	Rainfall of year.	Normal rainfall of year.			Variation from normal of year.	Heaviest rainfall in 24 hours during year.	
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.																
...	154.16	139.48	+14.68	...	Burma Coast and Bay Islands.	
28	38	42	14	32	19	77	77	31	8.7	7.3	+19	85	.907	5.7	134	...	...	124.17	117.39	+6.78	10.43	Port Blair	BAY ISLANDS.
...	50	36	22	32	13	79	27	106	2.4	1.9	+26	85	.822	5.6	155	...	...	176.22	163.33	+12.89	4.82	Mergui	TENASSERIM.
283	9	11	3	1	6	28	4	20	1.6	?	?	87	.817	3.7	148	...	...	217.89	197.47	+20.42	6.61	Tavoy.	
1	42	66	47	62	60	37	21	29	3.6	2.8	+29	87	.819	3.5	137	...	...	207.78	181.13	+26.65	7.17	Moulmein.	
37	72	15	7	126	77	4	1	26	3.5	3.2	+9	86	.781	5.5	102	...	...	58.13	82.61	-24.48	2.06	Toungthoo.	
...	33	51	33	9	22	97	95	25	4.3	4.6	-7	88	.805	4.9	115	...	...	109.67	96.32	+13.35	3.42	Rangoon	LOWER BURMA.
80	12	39	22	22	32	34	25	99	5.3	3.7	+43	88	.813	5.3	131	...	...	146.97	108.44	+38.53	4.82	Bassein.	
14	73	35	26	9	24	67	41	76	7.3	7.5	-3	79	.819	5.3	115	...	...	142.53	125.06	+17.47	4.94	Diamond Island.	
1	107	112	43	28	54	10	6	4	3.3	3.2	+3	86	.791	5.3	121	...	...	204.09	183.61	+20.48	7.89	Akyab	ARRAKAN.
...	43.66	55.26	-11.60	...	Burma, Inland.	
1	74	19	9	29	148	23	20	42	6.6	5.1	+29	75	.705	4.3	62	...	...	35.49	39.01	-3.52	3.32	Thayetmyo	CENTRAL BURMA.
87	26	13	20	16	156	6	7	34	?	?	?	74	.709	5.1	41	...	...	18.77	34.17	-15.40	2.11	Mandalay	UPPER BURMA.
229	23	33	3	7	5	11	2	24	3.2	?	?	93	.771	1.1	85	...	...	60.90	71.29	-10.39	4.15	Kendat.	
13	...	94	3	23	...	57	22	152	?	?	?	85	.649	5.1	80	...	...	59.46	76.56	-17.10	3.10	Bhamo.	
...	90.24	101.50	-11.26	...	Assam.	
291	4	15	35	14	4	...	1	1	1.0	2.7	-63	87	.713	6.2	142	...	...	108.07	126.88	-18.81	4.30	Silchar	ASSAM (SURMA).
20	4	162	45	51	6	61	7	9	1.8	2.5	-28	95	.701	7.7	135	...	...	88.39	90.25	-1.86	3.18	Sibsagar	BRAHMAPUTRA.
41	19	115	89	21	6	57	8	9	5.3	4.8	+10	87	.675	4.8	88	...	...	74.27	87.37	-13.10	6.32	Dhubri.	
...	65.54	74.5	-7.77	...	Bengal and Orissa.	
66	26	61	46	92	44	8	10	12	3.4	5.1	-33	84	.754	5.2	84	...	...	78.17	100.63	-22.46	5.90	Chittagong	EAST BENGAL.
...	...	...	...	...	...	...	...	...	...	...	...	...	.551	?	154	...	...	136.11	?	?	8.25	Lungleh.	
32	75	38	69	75	39	17	6	9	5.0	?	?	85	?	1.8	108	...	...	85.24	112.47	-27.23	2.92	Noakhally.	
27	62	31	41	79	103	13	9	...	3.3	?	?	85	?	2.9	100	...	...	87.16	92.27	-5.11	7.60	Comillah.	
...	33	43	77	63	61	37	32	19	2.4	?	?	88	?	4.4	77	...	...	55.80	?	?	3.68	Serajgunj.	
36	50	32	44	64	74	28	12	25	5.6	4.5	+24	85	.756	5.2	95	...	...	74.71	70.53	+4.18	5.10	Dacca.	
136	34	33	6	43	64	29	7	13	3.7	?	?	84	.795	4.0	96	...	...	60.60	79.66	-19.06	2.63	Barrisal.	
36	17	54	122	81	22	9	10	13	3.8	?	?	88	.728	4.6	102	...	...	75.58	86.06	-10.48	2.77	Mymensingh.	
118	38	16	28	64	69	22	3	7	3.7	?	?	87	?	3.8	78	...	...	62.14	69.68	-7.54	5.77	Furreedpore	DELTAIC BENGAL.
128	26	10	21	78	44	21	8	29	3.1	3.3	-6	87	.792	5.2	93	...	...	61.18	65.24	-4.06	3.04	Jessore.	
44	59	23	48	34	51	61	23	22	4.3	4.6	-7	83	.759	4.4	83	...	...	46.92	61.89	-14.97	2.81	Calcutta.	
1	65	50	25	17	82	68	24	24	13.3	10.7	+24	86	.822	5.5	78	...	...	76.79	75.63	+1.16	5.93	Saugor Island.	
10	30	23	53	60	55	32	47	55	4.6	?	?	78	?	4.6	70	...	...	53.12	55.58	-2.46	3.58	Kishnagar.	
14	117	46	10	22	116	15	2	23	8.8	?	?	76	?	2.4	75	...	...	63.26	58.84	+4.42	7.92	Midnapur.	

Table

Abstract of observations taken at 8 A.M.,

METEOROLOGICAL PROVINCE OR DISTRICT.	STATION.	Height of station in feet.	PRESSURE 8 A.M., IN INCHES.							TEMPERATURE OF AIR.											
			Mean actual pressure (reduced to 32°) of year.	Variation from normal.	Mean pressure of year reduced to sea-level and to constant gravity 45° Lat.	Highest pressure recorded during year.	Lowest pressure recorded during year.	Absolute range during year.	Mean monthly range of pressure.	Mean of 8 A.M. of year.	Mean maximum of year.	Variation from normal of year.	Mean minimum of year.	Variation from normal of year.	Mean daily temperature of year.	Variation from normal of year.	Mean daily range of temperature.	Highest temperature observed during year.	Lowest temperature observed during year.	Absolute range during year.	Mean monthly absolute range.
CENTRAL BENGAL.	Bankura . . .	298	29.535	P	29.790	29.900	29.124	.776	.249	74.4	89.0	P	69.6	P	79.2	P	19.1	109.1	46.9	62.2	31.2
	Ranigunj . . .	345	.526	P	.820	.904	.086	.818	.256	73.8	88.6	P	69.2	P	78.9	P	19.4	110.5	46.6	63.9	31.7
	Burdwan . . .	99	.769	+0.016	.816	30.146	.343	.803	.261	75.0	8.4	-0.4	70.2	-0.1	79.4	-0.2	18.2	106.5	45.2	61.3	29.4
	Nya Doomka . . .	490	.354	P	.809	29.722	28.925	.797	.246	74.6	87.4	P	67.9	P	77.7	P	19.4	108.2	43.0	65.2	31.5
	Berhampur . . .	66	.789	+0.002	.806	30.160	29.345	.815	.254	73.1	87.0	-0.7	69.5	+0.1	78.3	-0.3	17.6	106.2	45.6	60.6	28.4
	Rampur Bauleah . . .	70	.786	P	.807	.153	.343	.810	.250	74.0	85.3	P	68.8	P	77.1	P	16.6	103.3	44.7	58.6	28.4
	Maldah . . .	80	...	...	...	...	...	...	...	74.6	87.5	P	67.6	P	77.6	P	20.0	101.0	42.5	58.5	31.0
	Bogra . . .	61	.785	+0.013	.800	.140	.326	.814	.237	73.5	85.8	-0.4	67.7	-0.2	76.8	-0.3	18.1	105.3	43.5	61.8	29.3
NORTH BENGAL.	Dinajpore . . .	118	.740	-0.006	.814	.107	.291	.816	.259	72.3	86.0	+0.1	68.0	0	77.5	0	18.9	104.6	44.5	60.1	30.4
	Rungpore . . .	123	.755	P	.835	.116	.255	.861	.270	71.7	85.2	P	66.0	P	75.7	P	19.2	102.8	42.9	59.9	30.9
	Jalpaigori . . .	284	.581	+0.010	.825	29.927	.125	.802	.266	71.2	83.9	+0.2	64.9	-0.2	74.4	0	19.1	97.0	42.6	54.4	28.6
ORISSA . . .	Balasore . . .	561	.799	+0.005	.801	30.173	.293	.880	.276	75.4	87.6	+0.3	70.0	+0.3	78.9	+0.3	17.6	104.5	46.4	58.1	28.9
	False Point . . .	21	.840	+0.001	.803	.161	.397	.764	.270	77.2	85.3	-0.7	71.8	-0.3	78.5	+0.5	13.5	101.0	50.5	50.5	24.1
	Cuttack . . .	80	.785	+0.017	.809	.151	.338	.813	.271	77.2	90.9	-0.5	72.2	-0.3	81.6	-0.4	18.8	108.9	50.9	58.0	29.7
	Short's Island . . .	P	.828	P	P	.213	.342	.871	.263	79.5	84.5	P	75.6	P	80.1	P	8.8	98.7	62.7	36.0	19.3
	Pooree . . .	9	.844	P	.794	.215	.435	.780	.254	77.4	85.7	P	74.2	P	80.0	P	11.5	97.7	55.6	42.1	23.1
V.—Gangetic Plain and Chota Nagpur.		...	...	+0.011	...	...	...	...	...	...	87.5	-0.8	66.8	-0.5	77.3	-0.7	20.9	...	...	67.8	33.3
CHOTA NAGPUR . . .	Hazaribagh . . .	2,007	27.837	+0.009	29.808	28.157	27.425	.732	.232	72.4	85.0	P	P	P	P	P	105.1	P	P	P	
	Ranchee . . .	2,128	27.713	P	.800	.065	.293	.772	.234	71.5	83.5	P	64.3	P	73.9	P	19.2	105.0	40.9	64.1	31.3
	Chaibassa . . .	760	29.083	P	.800	29.480	28.657	.823	.252	74.9	89.6	P	68.6	P	79.1	P	21.0	111.3	44.9	66.4	32.5
BIHAR, SOUTH . . .	Gaya . . .	375	.476	+0.014	.812	.875	29.043	.832	.255	74.4	89.2	-0.9	68.9	+0.6	79.1	-0.1	20.2	110.6	45.0	65.6	32.6
	Dehree . . .	351	.497	P	.807	.905	.055	.850	.259	75.6	89.1	P	68.8	P	78.9	P	20.4	110.9	45.0	65.9	33.2
	Patna . . .	183	.668	+0.002	.806	30.074	29.224	.850	.260	74.8	87.3	-0.6	68.0	-0.3	77.7	-0.5	19.2	107.0	41.3	65.7	31.6
	Arrah . . .	190	.654	P	.800	.068	.236	.832	.255	76.2	88.2	P	69.1	P	79.2	P	20.1	106.7	40.4	66.3	30.1
	Buxar . . .	239	.606	P	.804	.028	.127	.901	.269	74.5	87.8	P	67.7	P	77.8	P	20.2	106.9	40.5	66.4	32.8
	Purneah . . .	125	.736	+0.014	.818	.106	.297	.809	.262	71.5	86.1	-0.9	64.7	-1.4	75.4	-1.2	21.4	109.9	34.7	75.2	33.2
BIHAR, NORTH . . .	Bhagalpur . . .	160	.687	P	.802	.085	.252	.833	.261	74.0	87.0	P	67.5	P	77.3	P	19.5	105.9	42.5	63.4	31.0
	Durbhanga . . .	166	.699	+0.016	29.823	.121	.267	.854	.264	72.8	86.3	+0.8	67.2	-1.4	76.8	-0.3	19.1	103.6	43.7	59.9	30.7
	Mozufferpore . . .	178	.669	P	.805	.062	.222	.840	.253	...	...	...	66.4	P	P	P	P	42.3	...	...
	Motihari . . .	224	.618	P	.805	29.998	.178	.820	.264	71.7	86.5	P	64.3	P	75.5	P	22.2	105.2	38.0	67.2	35.1
	Chupra . . .	181	.659	P	.800	30.032	.198	.884	.263	73.3	87.9	P	67.1	P	77.5	P	20.8	105.3	42.1	63.2	32.0
	Benares . . .	267	.580	+0.013	.810	29.991	.190	.801	.271	72.3	88.5	-1.4	66.2	-0.8	77.4	-1.1	22.4	111.8	38.9	72.9	35.4
N.-W. PROVINCES (EASTERN DISTRICTS).	Allahabad . . .	309	.535	+0.007	.807	.954	.072	.882	.276	74.0	90.1	+0.2	66.1	-0.4	78.1	-0.1	24.0	112.9	37.5	75.4	37.8
N.-W. PROVINCES (EAST SUBMONTANE).	Gorakhpur . . .	256	.585	0.11	.807	.984	.091	.893	.266	72.7	86.2	-2.2	66.9	-0.2	76.6	-1.3	19.3	105.8	41.3	64.5	31.8
ODDH, SOUTH . . .	Lucknow . . .	370	.475	+0.010	.814	.902	.007	.895	.276	72.5	88.8	-1.0	64.2	-0.2	76.9	-0.6	23.7	111.3	36.9	74.4	38.3
N.-W. PROVINCES (CENTRAL).	Cawnpore . . .	416	.418	P	.802	.850	28.950	.900	.289	73.6	88.6	P	66.6	P	77.6	P	22.0	113.1	37.7	75.4	36.8
VI.—Upper Sub-Himalayas		...	...	+0.019	...	...	...	...	...	...	85.3	-2.0	61.9	-0.4	73.5	-1.3	23.2	...	...	77.9	38.0
N.-W. PROVINCES (SUBMONTANE).	Bareilly . . .	568	.261	+0.015	.812	.689	28.785	.904	.276	69.7	86.4	-1.3	...	...	...	...	...	110.5	...	...	...
	Dehra Dun . . .	2,233	27.612	P	.848	27.958	27.188	.770	.275	64.8	80.9	P	60.0	P	70.5	P	20.9	103.0	35.5	67.5	33.0

I.

in India, Burma, etc., in the year 1891.

WIND DIRECTION.									WIND VELOCITY.			HYGROMETRY, 8 A.M.		RAINFALL.						STATION.	METEOROLOGICAL PROVINCE OR DISTRICT.		
Number of Winds during year from									Mean velocity in miles per hour.	Normal.	Percentage variation.	Mean humidity of year.	Mean vapour tension of year.	Mean cloud amount of year.	Number of rainy days during year.	Normal number of rainy days.	Variation.	Rainfall of year.	Normal rainfall of year.			Variation from normal of year.	Heaviest rainfall in 24 hours during year.
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.															
82	18	10	50	24	37	8	98	36	3.6	P	P	77	P	3.8	68	51.61	56.32	- 4.71	4.00	Bankura	CENTRAL BENGAL.
26	32	32	47	38	23	32	45	83	2.9	P	P	77	P	3.1	69	...	...	56.63	P	P	3.60	Ranigunj.
63	57	7	41	32	63	43	36	23	3.3	3.3	0	75	.685	5.0	78	...	...	57.62	55.85	+ 1.77	5.25	Burdwan.
73	17	13	58	50	28	19	14	93	4.0	P	P	72	P	1.8	69	...	...	51.12	56.46	- 5.34	3.50	Nya Doomka.
15	50	14	82	28	54	33	50	38	3.6	3.4	+ 6	87	.742	4.8	71	46.06	56.50	-10.44	2.94	Berhampur.	NORTH BENGAL.
9	81	33	43	75	47	45	22	10	3.4	P	P	83	P	3.3	75	...	...	56.92	58.38	- 1.46	5.58	Rampur Bauleah.
13	...	24	62	74	5	26	13	128	3.6	P	P	80	P	2.6	58	...	...	44.73	54.01	- 9.28	3.10	Maldah.
85	21	43	80	58	7	19	20	23	3.1	P	P	82	.714	3.5	70	...	...	50.89	67.94	-17.05	4.15	Bogra.
...	17	69	117	26	18	48	36	34	2.4	P	P	82	.682	3.8	64	50.26	69.33	-19.07	4.68	Dinajpore	ORISSA.
29	29	25	185	24	32	4	33	4	2.7	P	P	85	P	1.6	73	...	...	76.67	83.98	- 7.31	5.85	Rungpore.
...	...	...	...	...	...	...	...	...	3.5	P	P	86	.693	1.3	90	...	...	70.24	127.47	-57.23	3.80	Jalpaigori.
23	86	20	11	8	58	83	11	65	5.2	P	P	82	.760	2.4	89	...	...	67.92	64.90	+ 3.02	5.08	Balasore
7	76	10	7	7	59	81	53	65	10.2	9.3	+10	84	.808	5.3	61	71.67	64.35	+ 7.32	7.02	False Point.	V.—Gangetic Plain and Chota Nagpur.
107	9	32	14	5	33	92	50	23	2.8	2.8	0	75	.723	4.6	77	...	...	78.42	58.19	+20.23	9.81	Cuttack.
...	62	40	14	7	20	110	72	32	11.3	P	P	78	.815	4.0	56	...	...	62.02	P	P	8.50	Short's Island.
46	92	31	3	2	14	113	30	16	11.3	P	P	83	P	3.9	48	...	...	56.72	55.62	+ 1.10	13.61	Pooree.
...	40.99	45.56	- 3.52	
33	23	9	31	26	60	47	77	59	8.5	6.6	+29	63	.500	4.5	67	47.09	51.26	- 4.17	2.82	Hazaribagh	CHOTA NAAGPUR.
126	21	14	8	9	24	58	56	49	5.5	P	P	67	P	4.4	85	...	...	49.97	50.40	- 0.43	3.24	Ranchee.
85	10	33	23	9	12	93	84	14	1.8	P	P	73	P	3.9	75	...	...	56.46	55.14	+ 1.32	4.00	Chaibassa.
4	14	1	97	6	142	16	79	6	5.2	2.6	+100	72	.664	3.9	47	...	...	36.93	46.94	-10.01	2.42	Gaya
55	7	5	47	34	32	114	46	13	5.3	P	P	67	P	2.7	48	22.07	P	P	3.25	Dehree.	BINAR, SOUTH.
17	0	14	149	14	19	23	116	13	4.5	3.1	+45	70	.638	3.6	49	...	...	35.90	45.18	- 9.28	5.15	Patna.
2	13	48	69	41	23	60	80	28	2.1	P	P	75	P	1.9	49	...	...	30.32	45.03	-14.71	3.78	Arrah.
9	6	32	98	11	6	34	110	59	5.9	P	P	68	P	3.2	44	...	...	21.43	39.94	-18.51	1.74	Buxar.
144	11	39	64	26	9	30	26	16	2.1	2.3	- 9	84	.667	3.1	58	40.92	65.76	-24.84	3.95	Purneah	BINAR, NORTH.
212	2	15	48	32	13	16	23	4	1.5	P	P	77	P	3.7	52	...	...	45.51	47.58	- 2.07	4.64	Bhagalpur.
56	10	39	96	53	2	35	46	28	4.3	4.1	+ 5	79	.673	2.6	53	...	...	42.64	50.69	- 8.05	9.09	Durbhanga.
48	7	23	114	44	11	30	61	12	4.8	P	P	P	P	2.5	50	...	...	36.02	44.58	- 8.56	5.87	Mozufferpore.
20	8	69	100	40	1	26	65	36	6.1	P	P	81	P	3.4	62	53.61	49.28	+ 4.33	3.43	Motihari.	N.-W. PROVINCES (EAST SUBMONTANE).
27	6	11	130	28	16	56	72	19	4.8	P	P	78	P	2.4	42	...	...	27.77	40.16	-12.39	2.12	Chupra.
130	8	35	45	9	18	75	42	3	4.2	3.9	+ 8	76	.637	3.5	45	...	...	30.33	38.06	- 7.73	2.38	Benares
84	17	34	41	15	13	31	84	46	4.8	3.0	+60	69	.596	3.5	46	...	...	50.06	35.77	+14.29	6.68	Allahabad.
37	18	24	87	25	23	11	116	24	2.3	2.5	- 8	75	.642	2.4	51	64.60	47.47	+17.13	7.61	Gorakhpur	N.-W. PROVINCES (CENTRAL).
114	25	22	59	17	4	20	66	38	3.5	3.0	+17	71	.590	3.6	52	...	...	42.97	35.51	+ 7.46	6.02	Lucknow
30	25	39	48	32	26	54	70	41	4.5	P	P	70	.608	3.5	49	...	...	44.18	31.25	+12.93	7.30	Cawnpore
...	38.00	39.58	-1.58	
206	6	7	9	55	1	11	8	62	2.3	3.6	-36	75	.585	2.5	56	61.74	48.34	+13.40	8.20	Bareilly	N.-W. PROVINCES (SUBMONTANE).
308	6	11	12	7	10	2	4	4	1.4	1.8	-22	70	.474	4.2	81	...	...	54.83	85.62	-30.79	3.67	Dehra Dun.

Table

Abstract of observations taken at 8 A.M.,

METEOROLOGICAL PROVINCE OR DISTRICT.	STATION.	Height of station in feet.	PRESSURE 8 A.M. INCHES.							TEMPERATURE OF AIR.											
			Mean actual pressure reduced to 32° of year.	Variation from normal.	Mean pressure of year reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during year.	Lowest pressure recorded during year.	Absolute range during year.	Mean monthly range of pressure.	Mean of 8 A.M. of year.	Mean maximum of year.	Variation from normal of year.	Mean minimum of year.	Variation from normal of year.	Mean daily temperature of year.	Variation from normal of year.	Mean daily range of temperature.	Highest temperature observed during year.	Lowest temperature observed during year.	Absolute range during year.	Mean monthly absolute range.
PUNJAB, CENTRAL	Roorkee . . .	887	28'946	+ '019	29'831	29'370	28'475	'895	'297	67'8	86'1	-1'2	62'4	-0'2	74'2	-0'7	23'7	110'7	33'8	76'9	38'1
	Meerut . . .	737	29'099	+ '024	'825	'557	'625	'932	'295	69'4	86'4	-1'5	63'0	-0'6	74'7	-1'1	23'4	110'0	35'5	74'5	36'2
	Delhi . . .	718	'126	+ '026	'827	'581	'660	'921	'289	71'7	86'5	-3'0	67'0	-0'1	76'7	-1'6	19'5	111'0	41'2	69'8	33'4
	Lahore . . .	702	'123	+ '020	'817	'618	'640	'978	'339	69'6	87'1	-1'9	61'4	-1'0	74'3	-1'5	25'7	117'8	33'2	84'6	41'6
PUNJAB, SUB-MONTANE.	Ludhiana . . .	812	'004	+ '007	'810	'467	'516	'951	'306	69'8	86'2	-2'7	62'6	-0'5	74'4	-1'6	24'3	114'5	34'8	79'7	39'3
PUNJAB, NORTH	Stalkot . . .	829	28'986	+ '018	'815	'466	'518	'948	'319	69'1	85'5	-2'3	61'8	-0'2	73'7	-1'3	23'7	116'4	31'2	85'2	40'1
	Rawalpindi . .	1,649	'184	+ '021	'828	28'641	27'740	'901	'334	64'6	81'7	-2'6	57'1	-0'1	69'4	-1'4	24'7	113'5	29'4	84'1	42'6
VII.—Indus Valley and North-West Rajputana.			...	+ '021	...	...	...	...	...	...	90'4	-0'3	65'6	+0'4	78'1	0	24'9	...	...	78'6	40'4
PUNJAB, WEST	Peshawar . . .	1,110	28'766	+ '037	'847	29'282	28'262	1'020	'375	66'8	83'6	-2'0	58'7	0	71'2	-1'0	24'9	115'0	29'9	85'1	41'6
	Khushab . . .	612	29'218	?	'812	'729	'715	1'014	'359	69'8	90'3	?	?	?	?	?	?	125'1	?	?	?
	Montgomery . .	558	'269	?	'810	'784	'783	1'001	'355	72'9	90'6	?	63'8	?	77'2	?	26'9	120'4	32'8	87'6	45'1
	D. I. Khan . . .	573	'253	+ '011	'818	'845	'746	1'099	'385	68'7	89'6	-0'8	62'2	+0'1	75'9	-0'4	27'4	120'5	32'0	88'5	44'5
	Mooltan . . .	420	'415	+ '020	'814	'952	'902	1'050	'373	71'7	91'2	+0'1	65'3	+1'1	78'3	+0'6	25'8	119'3	36'2	83'1	42'8
	Sirsa . . .	662	'168	+ '017	'815	'649	'719	'928	'317	71'0	91'0	-0'3	64'1	+0'8	77'6	+0'3	26'9	118'4	34'2	84'2	44'1
SIND AND CUTCH	Jacobabad . . .	186	'657	+ '027	'808	30'228	29'137	1'091	'337	72'9	95'1	+0'2	65'4	+0'9	80'2	+0'5	30'2	122'0	34'0	88'0	46'6
	Hyderabad . . .	117	'740	+ '022	'814	'247	'236	1'011	'303	73'8	93'4	+0'3	68'0	-0'2	80'7	+0'1	25'5	117'2	41'3	75'9	38'6
	Kurrachee . . .	49	'834	+ '016	'836	'278	'383	'895	'275	73'9	86'9	+0'1	69'9	+0'3	78'4	+0'2	17'0	103'8	47'1	56'7	28'5
	Bhuj . . .	395	'480	?	'832	29'831	'089	'742	'224	76'7	91'9	?	69'3	?	80'8	?	22'6	109'1	47'1	62'0	34'5
RAJPUTANA, WEST	Bickaneer . . .	744	'036	?	'754	'442	28'572	'870	'223	74'6	90'8	?	69'6	?	80'2	?	21'3	116'3	41'1	75'2	37'3
VIII.—East Rajputana, Central India and Guzerat.			...	+ '020	...	...	...	...	...	...	90'6	+0'2	66'1	+0'2	78'4	+0'2	24'5	...	...	72'0	38'5
RAJPUTANA, EAST	Jeypore . . .	1,431	28'430	+ '013	29'851	28'813	28'015	'798	'262	72'6	90'3	+0'3	64'7	+0'1	77'5	+0'2	25'7	114'3	36'2	78'1	40'4
	Sambhar . . .	1,254	28'586	+ '008	29'833	28'968	28'174	'794	'261	70'8	89'5	+0'8	64'2	-0'2	76'9	+0'3	25'2	113'0	33'0	80'0	41'4
	Ajmere . . .	1,611	28'348	+ '024	29'870	28'641	27'804	'837	'273	71'4	89'6	+1'1	65'1	+2'0	77'4	+1'6	24'5	111'0	35'0	76'0	40'4
	Deesa . . .	466	29'419	+ '020	29'849	29'759	28'980	'779	'229	75'5	95'5	+2'4	67'6	+1'0	81'6	+1'7	27'8	113'5	40'0	73'5	41'2
KATHIAWAR	Rajkot . . .	429	29'470	+ '025	29'860	29'751	29'068	'683	'205	74'6	93'2	+0'1	66'0	+0'2	79'7	+0'2	27'2	109'4	39'1	70'3	40'4
	Veraval . . .	?	29'895	?	29'857	30'175	29'477	'698	'191	76'6	...	?	...	?	...	?	...	...	...	...	...
	Bhavnagar . . .	?	29'716	?	29'711	30'179	29'228	'951	'206	75'5	92'4	?	69'5	?	81'0	?	22'9	107'4	46'0	61'4	35'5
CENTRAL INDIA	Nowgong . . .	757	29'097	+ '015	29'831	29'505	28'631	'874	'261	72'4	88'4	-1'9	64'9	-0'4	76'6	-1'2	23'5	114'1	36'5	77'6	38'2
	Indore . . .	1,823	28'061	+ '024	29'865	28'359	27'616	'743	'207	72'3	87'5	+0'1	62'6	-0'9	75'1	-0'4	24'9	106'8	37'2	69'6	37'5
	Neemuch . . .	1,630	28'378	+ '021	29'863	28'582	27'803	'779	'245	72'5	88'7	+0'1	64'3	+0'2	76'6	+0'2	24'4	110'1	38'0	72'1	37'8
GUZERAT	Surat . . .	36	29'887	+ '030	29'868	30'146	29'468	'678	'180	76'3	91'5	+0'4	68'8	-0'2	80'2	+0'1	22'8	107'1	50'1	57'0	35'0
N.-W. P., WEST	Agra . . .	555	29'309	+ '024	29'841	29'750	28'867	'883	'283	72'2	89'4	-1'1	66'6	-0'6	78'0	-0'9	22'9	115'0	38'7	76'3	38'0
	Jhansi . . .	840	29'003	+ '021	29'817	29'412	28'547	'865	'269	74'9	90'8	+0'2	69'0	+1'0	79'9	+0'6	21'9	115'5	43'9	71'6	35'9
IX.—Deccan			...	+ '018	...	...	...	...	...	...	90'0	+0'2	65'8	-0'2	77'9	0	24'2	...	...	66'2	36'1
BOMBAY, DECCAN	Belgaum . . .	2,524	27'396	+ '015	29'872	27'581	27'156	'425	'145	71'5	85'0	+0'6	64'0	0	74'5	+0'3	21'0	99'8	50'4	49'4	29'9
	Sholapur . . .	1,590	28'330	+ '032	29'878	28'577	28'049	'528	'161	76'4	94'3	+1'7	67'7	+0'1	81'0	+0'9	26'6	110'2	48'1	62'1	37'1
	Poona . . .	1,840	28'085	+ '029	29'899	28'332	27'758	'576	'164	72'4	90'6	+2'1	63'7	-1'0	77'2	+0'6	27'0	105'3	45'0	60'3	37'2

I.

in India, Burma, etc., in the year 1891.

WIND DIRECTION.										WIND VELOCITY.			HYGROMETRY, 8 A.M.		RAINFALL.							STATION.	METEOROLOGICAL PROVINCE OR DISTRICT.	
Number of Winds during year from										Mean velocity in miles per hour.	Normal.	Percentage variation.	Mean humidity of year.	Mean vapour tension of year.	Mean cloud amount of year.	Number of rainy days during year.	Normal number of rainy days.	Variation.	Rainfall of year.	Normal rainfall of year.	Variation from normal of year.			Heaviest rainfall in 24 hours during year.
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.																
200	7	5	8	59	26	1	39	20	2'6	2'5	+ 4	73	'560	2'7	49	47'61	43'70	+ 3'91	4'80	Roorkee.	PUNJAB, CENTRAL.
145	5	6	38	38	5	5	91	32	2'1	2'2	- 5	69	'513	2'9	40	...	...	...	36'86	33'00	+ 3'86	3'60	Meerut.
120	6	4	33	36	1	32	116	17	3'1	3'6	-14	64	'521	3'5	56	...	...	...	35'50	29'79	+ 5'71	7'15	Delhi . . .
154	25	18	46	42	16	8	30	26	2'2	2'3	- 4	66	'489	2'7	29	...	...	...	17'68	21'12	- 3'44	2'70	Lahore.
163	25	8	19	39	22	1	60	28	2'1	1'5	+40	69	'523	3'6	37	...	...	...	22'64	31'11	- 8'47	2'60	Ludhiana. . .
123	68	25	79	13	9	2	30	16	2'0	1'8	+11	70	'513	2'8	50	34'24	30'57	+ 3'67	4'47	Sialkot . . .	PUNJAB, SUB-MONTANE.
141	19	28	9	41	6	22	11	88	1'9	2'0	- 5	71	'454	3'2	45	30'88	32'95	- 2'07	4'90	Rawalpindi.	PUNJAB, NORTH.
...	7'38	9'84	- 2'46	...	VII.—Indus Valley and North-West Rajputana.	
126	29	21	16	23	41	38	26	45	3'7	3'4	+ 9	65	'449	3'1	25	13'30	12'49	+ 0'81	3'03	Peshawar . . .	PUNJAB, WEST.
109	44	78	49	9	21	17	20	18	4'0	?	?	55	'428	2'4	24	...	...	...	12'32	10'35	+ 1'97	2'20	Khushab.
62	33	41	47	54	53	27	24	24	6'2	?	?	59	'500	2'6	22	...	...	...	12'04	10'26	+ 1'78	3'12	Montgomery.
177	30	40	41	6	4	10	22	35	1'3	1'7	-23	67	'500	2'2	17	...	...	...	8'68	7'82	+ 0'86	1'48	D. I. Khan.
143	3	59	1	56	...	61	2	40	1'3	2'3	-43	60	'478	1'9	16	...	...	...	4'04	6'33	- 2'29	0'46	Mooltan.
50	37	17	47	24	52	42	69	27	5'8	3'8	+53	69	'540	3'4	22	11'68	14'81	- 3'15	2'25	Sirsa.	SIND AND CUTCH.
149	12	17	64	70	17	3	4	29	3'0	3'3	- 9	56	'495	2'1	10	...	...	...	2'06	3'66	- 1'60	0'42	Jacobabad . . .
2	28	100	1	5	4	202	6	17	9'7	10'2	- 5	57	'503	3'2	7	...	...	...	2'29	7'85	- 5'56	0'55	Hyderabad.
3	21	98	30	4	1	46	120	42	13'1	12'6	+ 4	74	'680	3'3	7	...	...	...	2'42	7'77	- 5'35	0'60	Kurrachee.
28	32	16	11	3	7	48	157	60	10'4	10'2	+ 9	62	'607	2'5	8	...	...	...	5'92	14'80	- 8'88	2'11	Bhuj.
...	39	58	15	29	38	115	26	43	6'3	5'0	+26	51	'466	2'1	17	6'47	12'10	- 5'63	1'73	Bickaneer . . .	RAJPUTANA, WEST.
...	28'01	32'27	- 3'14	...	VIII.—East Rajputana, Central India and Guzerat.	
93	36	42	26	12	5	24	70	57	4'2	5'0	-16	57	'485	3'2	36	20'22	27'53	- 7'31	2'48	Jeypore . . .	RAJPUTANA, EAST.
126	39	27	18	14	12	13	84	32	7'6	6'5	+ 9	56	'466	2'3	27	...	...	...	12'67	22'47	- 9'80	1'75	Sambhar.
136	1	26	4	8	15	38	120	17	5'8	4'4	+32	61	'498	2'3	25	...	...	...	8'93	22'65	-13'72	1'35	Ajmere.
...	52	65	75	18	16	26	51	62	10'6	10'4	- 2	51	'494	3'8	24	...	...	...	13'24	25'77	-12'53	1'87	Deesa.
63	13	23	33	10	5	34	132	52	8'3	8'8	- 6	70	'643	2'8	26	...	...	...	26'51	30'26	- 3'75	6'38	Rajkot . . .
80	66	51	5	2	6	29	88	37	8'5	?	?	66	'646	3'4	18	23'95	?	?	5'65	Veraval.	KATHIAWAR.
...	...	...	...	...	...	...	...	...	12'3	?	?	75	'701	2'9	30	...	...	...	19'75	?	?	3'02	Bhavnagar.
85	34	19	41	7	7	15	124	33	2'8	2'3	+22	66	'540	3'7	55	...	...	...	45'45	45'29	+ 0'16	4'27	Nowgong . . .
95	25	19	28	15	9	30	95	49	3'8	4'2	-10	55	'484	3'1	40	...	...	...	28'33	36'24	- 7'91	3'84	Indore.
53	25	33	34	12	2	101	73	31	9'1	10'0	- 9	60	'529	1'8	32	...	...	...	23'34	32'02	- 8'68	4'10	Neemuch.
...	28	61	7	11	16	119	61	62	?	70	'674	3'5	40	67'85	43'34	+24'51	18'00	Surat . . .	GUZERAT.
35	6	24	2	60	7	78	13	140	4'4	4'3	+ 2	64	'529	3'1	46	33'33	30'19	+ 3'14	3'75	Agra . . .	N.-W. P., WEST.
108	28	25	8	18	23	62	16	77	3'1	3'4	- 9	58	'519	2'2	57	...	...	...	40'56	39'16	+ 1'40	5'40	Jhansi.
...	43'95	42'02	+ 1'94	...	X.—Deccan.	
45	19	34	56	25	7	16	93	70	3'5	15'7	-78	66	'513	3'8	71	47'36	47'50	- 0'14	3'20	Belgaum . . .	BOMBAY, DECCAN.
5	21	46	53	42	9	51	85	53	9'2	9'0	+ 2	56	'502	3'8	26	...	...	...	24'09	35'02	-10'93	4'20	Sholapur.
148	...	2	28	9	1	17	113	48	9'6	10'0	- 4	56	'464	3'6	36	...	...	...	17'99	28'05	-10'06	1'74	Poona.

Table

Abstract of observations taken at 8 A.M.,

METEOROLOGICAL PROVINCE OR DISTRICT	STATION.	Height of station in feet.	PRESSURE 8 A.M. IN INCHES.							TEMPERATURE OF AIR.											
			Mean actual pressure reduced to 32° of year.	Variation from normal.	Mean pressure of year reduced to sea-level and to constant gravity, 45° Lat.	Highest pressure recorded during year.	Lowest pressure recorded during year.	Absolute range during year.	Mean monthly range of pressure.	Mean 8 A.M. of year.	Mean maximum of year.	Variation from normal of year.	Mean minimum of year.	Variation from normal of year.	Mean daily temperature of year.	Variation from normal of year.	Mean daily range of temperature.	Highest temperature observed during year.	Lowest temperature observed during year.	Absolute range during year.	Mean monthly absolute range.
KHANDEISH . . .	Malegaon . . .	1,430	28'481	+ '030	29'889	28'763	28'074	'689	'183	73'5	91'3	+0'5	63'8	-1'0	77'6	-0'3	27'6	109'3	38'8	70'5	39'9
	Ahmednagar . . .	2,152	27'770	P	29'889	28'013	27'437	'576	'166	72'6	89'3	P	62'8	P	76'0	P	26'5	105'7	41'4	64'3	35'3
BERAR . . .	Akola . . .	930	28'919	+ '023	29'857	29'270	28'569	'701	'196	73'6	92'3	+0'2	66'0	-0'7	79'2	-0'2	26'4	111'6	41'2	70'4	38'8
	Amraoti . . .	1,216	28'659	+ '022	29'845	28'972	28'275	'697	'200	75'2	92'0	+0'3	68'9	+0'9	80'5	+0'6	23'1	113'9	49'9	64'0	35'3
CENTRAL PROVINCES, WEST.	Khandwa . . .	1,044	28'842	+ '031	29'867	29'167	28'416	'751	'202	72'5	90'5	-0'8	66'0	-0'3	78'3	-0'5	24'5	111'7	40'6	71'1	37'7
	Hoshangabad . . .	1,020	28'862	+ '016	29'865	29'211	28'398	'813	'224	72'0	89'7	-0'7	66'7	+0'1	78'2	-0'3	23'0	112'6	44'3	68'3	35'2
	Nagpur . . .	1,025	28'754	+ '016	29'833	29'173	28'425	'748	'224	76'4	91'1	-0'7	68'8	+0'4	80'0	-0'2	22'3	114'9	48'2	66'7	34'1
CENTRAL PROVINCES, CENTRAL.	Seoni . . .	2,030	27'914	+ '003	29'854	28'155	27'380	'775	'229	73'2	87'1	-0'6	63'7	-1'0	75'4	-0'8	23'4	108'2	43'0	65'2	34'5
	Jubbulpore . . .	1,327	28'529	+ '018	29'845	28'890	28'017	'873	'246	70'5	87'5	-0'7	63'7	-0'6	75'6	-0'7	23'8	112'0	36'9	75'1	36'9
	Saugor . . .	1,762	28'095	+ '009	29'843	28'439	27'625	'814	'236	71'7	87'9	+0'3	64'8	-0'6	76'3	-0'2	23'1	111'9	41'1	70'8	35'4
CENTRAL PROVINCES, EAST.	Raipur . . .	9,600	28'885	+ '015	29'821	29'240	28'468	'772	'225	75'8	89'6	-0'4	69'0	+0'1	79'3	-0'1	20'6	113'7	47'9	65'8	33'4
	Sutna . . .	1,040	28'795	+ '005	29'819	29'191	28'300	'891	'268	73'0	87'6	-0'1	64'3	-6'7	76'0	-0'4	23'3	112'2	37'1	75'1	37'7
HYDERABAD, SOUTH .	Secunderabad . . .	1,787	28'114	+ '004	29'864	28'375	27'834	'541	'175	74'8	92'0	+1'9	68'9	+1'0	80'5	+1'5	23'1	108'8	49'1	59'7	34'4
X.—West Coast . . .			...	+ '013	...	...	...	...	...	...	87'1	+1'1	73'0	-0'1	79'8	+0'5	14'6	...	...	33'2	21'8
KONKAN . . .	Bombay . . .	37	29'891	+ '020	29'869	30'131	29'559	'572	'171	78'0	85'7	+0'2	74'8	+0'1	80'3	+0'2	10'9	92'4	58'5	33'9	18'7
	Ratnagiri . . .	110	29'809	+ '025	29'858	30'030	29'542	'488	'158	80'3	88'7	+1'4	71'9	-0'8	80'3	+0'3	16'7	97'9	58'4	39'5	24'9
	Mormugoa . . .	60	29'869	P	29'864	30'041	29'656	'385	'147	79'0	...	...	76'3	P	...	...	...	...	66'3	...	...
	Karwar . . .	44	29'885	+ '007	29'865	30'075	20'713	'362	'145	75'8	87'7	+1'7	71'9	-0'5	79'8	+0'6	15'7	94'8	58'1	36'7	22'0
MALABAR . . .	Mangalore . . .	26	29'922	+ '010	29'881	30'074	29'777	'297	'144	78'1	87'7	+1'2	74'4	+0'4	81'1	+0'8	13'3	96'8	63'5	33'3	21'9
	Calicut . . .	27	29'918	- '001	29'876	30'051	29'754	'297	'140	79'0	87'3	P	74'2	P	80'8	P	13'2	94'4	63'7	30'7	20'4
	Cochin . . .	10	29'943	+ '014	29'883	30'072	29'790	'282	'129	79'4	88'0	+0'9	74'9	+0'5	81'4	+0'7	12'9	93'3	66'3	27'0	19'1
	Trivandrum . . .	198	29'601	P	29'879	29'716	29'443	'273	'128	78'2	84'5	P	65'4	P	75'0	P	19'3	91'5	60'0	31'5	24'8
XI.—South India . . .			...	+ '010	...	...	...	...	...	...	90'7	+1'0	73'1	+0'7	81'9	+0'9	17'5	...	...	46'6	27'6
MADRAS, SOUTH .	Pamban I. . .	37	29'892	P	29'863	30'057	29'642	'415	'158	81'6	86'8	P	77'8	P	82'3	P	9'1	93'8	60'2	33'6	17'7
	Madura . . .	447	29'474	+ '011	29'860	29'644	29'240	'404	'153	80'6	83'6	-0'8	74'5	+0'9	84'1	+0'1	19'1	104'0	59'2	44'8	30'6
MADRAS, SOUTH CENTRAL.	Salem . . .	940	29'012	+ '009	29'902	29'200	28'803	'397	'150	78'0	94'8	+2'2	71'9	+1'9	83'4	+2'1	22'9	105'9	57'9	48'0	32'8
	Coimbatore . . .	1,348	...	...	...	...	...	...	...	75'3	90'2	0	69'3	-0'4	79'9	-0'2	20'9	101'3	58'6	42'7	29'5
COORG . . .	Mercara . . .	3,781	26'246	P	29'891	26'395	26'107	'288	'132	66'1	77'8	+1'4	61'2	0	69'5	+0'7	16'5	92'2	51'2	41'0	25'2
MYSORE . . .	Bangalore . . .	2,982	27'003	+ '009	29'908	27'174	26'821	'358	'140	70'7	85'3	+1'5	64'7	+0'9	75'0	+1'2	20'6	96'7	51'9	44'8	30'0
MADRAS, EAST COAST, SOUTH.	Negapatam . . .	31	29'892	+ '005	29'844	30'088	29'658	'430	'161	81'4	90'6	+1'2	76'0	+0'4	83'3	+0'8	14'7	103'2	64'7	38'5	24'1
	Cuddalore . . .	12	29'908	P	29'851	30'113	29'677	'436	'167	80'8	91'1	P	75'3	P	83'2	P	15'9	105'8	64'3	41'5	25'5
	Trichinopoly . . .	255	29'669	+ '005	29'859	29'857	29'441	'416	'160	80'3	94'7	+0'9	74'8	+1'3	84'8	+1'1	19'9	106'2	62'4	43'8	30'0
MADRAS, EAST COAST, CENTRAL.	Madras . . .	22	29'898	+ '010	29'852	30'128	29'642	'486	'174	81'9	92'4	+1'9	75'5	+0'8	84'0	+1'4	16'9	107'5	61'5	46'0	27'3
	Nellore . . .	71	29'828	P	29'835	30'088	29'568	'520	'187	81'9	94'9	P	75'6	P	85'3	P	19'3	111'3	61'1	50'2	30'0
	Masulipatam . . .	15	29'888	+ '010	29'837	30'175	29'582	'583	'196	80'7	91'9	+1'5	75'0	+0'8	83'5	+1'2	16'9	112'7	59'7	53'0	28'9
MADRAS, CENTRAL .	Cuddapah . . .	433	29'489	P	29'865	29'726	29'254	'472	'170	82'0	96'5	P	75'1	P	85'8	P	21'4	109'8	57'3	52'5	33'2
	Kurnool . . .	923	28'991	P	29'867	29'231	28'735	'496	'171	79'2	94'7	P	71'1	P	82'9	P	23'6	108'6	46'6	62'0	35'4
	Bellary . . .	1,475	28'443	+ '029	29'875	28'672	28'207	'465	'163	77'8	94'0	+0'8	70'9	+0'6	82'5	+0'7	23'0	106'5	50'8	55'7	33'1
MADRAS, EAST COAST, NORTH.	Rajahmundry . . .	112	29'772	P	29'823	30'060	29'475	'585	'204	79'7	93'6	P	74'2	P	83'9	P	19'4	114'1	57'9	56'2	29'9
	Coconada . . .	26	29'865	P	29'827	30'157	29'557	'600	'213	80'0	89'2	P	74'5	P	81'8	P	14'6	110'4	59'2	51'2	28'1
	Vizagapatam . . .	21	29'847	+ '004	29'818	30'163	29'476	'687	'238	81'5	86'0	+0'5	78'1	+1'6	82'1	+1'2	7'9	99'9	59'9	40'0	16'5
	Gopalpur . . .	21	29'842	+ '012	29'805	30'211	29'444	'767	'260	78'0	84'7	+1'0	74'2	-0'5	79'5	+0'3	10'6	92'2	52'0	40'2	19'2

I.

in India, Burma, etc., in the year 1891.

WIND DIRECTION.									WIND VELOCITY.			HYGROMETRY 8 A.M.		Mean cloud amount of year.	RAINFALL.						STATION.	METEOROLOGICAL PROVINCE OR DISTRICT.	
Number of Winds during year from									Mean velocity in miles per hour.	Normal.	Percentage variation.	Mean humidity of year.	Mean vapour tension of year.		Number of rainy days during year.	Normal number of rainy days.	Variation.	Rainfall of year.	Normal rainfall of year.	Variation from normal of year.			Heaviest rainfall in 24 hours during year.
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.															
40	9	9	4	...	2	65	150	86	7.7	7.3	+5	60	.532	3.1	34	...	...	15.77	27.50	-11.73	1.58	Malegaon . .	KHAREISH.
44	50	26	19	33	7	20	75	51	7.9	?	?	68	.568	3.0	33	...	...	18.08	26.33	-8.25	2.91	Ahmednagar.	
61	17	31	35	20	1	12	54	134	7.5	5.3	+42	59	.504	3.7	43	...	...	33.46	37.95	-4.49	5.35	Akola . . .	BERAR.
1	8	79	73	12	3	22	119	48	7.8	4.6	+70	56	.492	3.6	42	...	...	41.35	36.98	+4.37	4.86	Amraoti.	
62	32	49	8	1	11	15	140	47	6.8	5.6	+21	60	.496	3.0	38	...	...	34.46	33.74	+0.72	3.51	Khandwa . .	CENTRAL PROVINCES, WEST.
38	19	55	56	5	44	93	53	2	5.4	2.9	+86	67	.540	3.4	65	...	...	67.79	58.40	+9.39	6.33	Hoshangabad.	
61	73	25	11	6	24	40	62	63	7.0	5.1	+37	59	.538	3.6	69	...	...	54.10	51.00	+3.10	5.71	Nagpur.	
9	63	44	35	9	33	60	56	56	3.5	3.9	-10	65	.535	3.2	85	...	...	80.47	57.35	+23.12	7.58	Seoni . . .	CENTRAL PROVINCES, CENTRAL.
107	13	22	13	51	37	29	82	11	2.6	3.2	-19	70	.529	3.4	75	...	...	75.29	58.51	+16.78	5.68	Jabalpur.	
...	...	...	...	...	...	...	...	...	4.2	3.4	+24	60	.472	2.7	68	...	...	65.24	44.35	+20.89	4.69	Saugor.	
53	41	45	20	8	21	84	74	19	7.2	5.9	+22	64	.570	4.4	75	...	...	60.73	51.20	+6.53	5.70	Raipur . . .	CENTRAL PROVINCES, EAST.
67	89	20	18	10	24	11	81	45	5.7	6.2	-8	62	.509	2.5	58	...	...	48.52	43.57	+4.95	3.40	Sutna.	
68	4	45	59	12	11	23	84	59	7.0	6.3	+11	68	.595	4.1	42	...	...	18.52	31.79	-13.27	2.11	Secunderabad .	HYDERABAD, SOUTH.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	89.98	112.68	-18.96	...	X.—West Coast.	
1	47	79	74	22	18	34	70	20	11.8	12.1	-2	75	.739	4.0	74	...	...	77.15	78.31	-1.16	7.10	Bombay . . .	KONKAN.
28	43	30	82	29	10	57	42	44	9.4	10.1	-7	66	.681	2.8	89	...	...	98.85	110.33	-11.48	8.69	Ratnagiri.	
24	10	29	98	20	18	3	75	77	9.1	?	?	80	.801	3.1	80	...	...	63.98	?	?	5.07	Mormugoa.	
55	20	160	25	...	...	44	30	31	3.0	...	...	81	.736	3.1	105	...	...	80.26	128.66	-48.40	5.66	Karwar.	
105	50	46	89	12	2	10	27	24	2.3	3.5	-34	83	.812	4.5	109	...	...	92.08	125.67	-33.59	4.43	Mangalore . .	MALABAR.
110	39	58	80	20	5	4	6	43	7.8	...	...	82	.806	4.2	106	...	...	99.41	112.39	-12.98	4.13	Calicut.	
111	23	136	38	10	8	7	11	21	3.3	...	...	81	.798	4.4	140	...	...	114.68	120.81	-6.13	8.69	Cochin.	
...	140	77	44	9	7	5	32	50	8.0	...	...	82	.802	5.6	127	...	...	93.39	?	?	5.51	Trivandrum.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	33.89	44.08	-10.19	...	XI.—South India.	
18	47	55	35	28	54	81	23	23	...	?	?	76	...	4.0	62	...	...	52.10	37.00	+15.10	6.30	Pamban . . .	MADRAS, SOUTH.
54	87	55	12	21	5	25	22	84	2.9	4.3	-33	69	.724	3.8	47	...	...	37.56	30.31	+7.25	6.55	Madura.	
79	5	102	34	4	72	56	8	5	3.1	4.5	-31	76	.746	3.8	42	...	...	20.76	43.98	-23.22	1.79	Salem . . .	MADRAS, SOUTH, CENTRAL.
...	74	52	31	15	97	54	28	14	4.1	4.7	-13	83	.740	5.2	42	...	...	24.82	21.87	+2.95	4.23	Coimbatore.	
...	45	23	119	...	2	5	113	58	4.8	5.7	-16	82	.530	6.5	130	...	...	117.61	135.27	-17.66	5.66	Mercara . . .	COORG.
...	18	55	63	24	29	62	108	6	4.8	5.5	-13	75	.569	5.2	40	...	...	24.44	36.93	-12.49	4.00	Bangalore . .	MYSORE.
22	24	28	19	23	22	63	92	72	5.1	5.6	-9	74	.792	5.8	60	...	...	56.12	58.93	-2.81	7.30	Negapatam . .	MADRAS, EAST COAST, SOUTH.
...	54	11	8	11	36	52	82	111	3.0	...	...	81	.856	3.2	63	...	...	56.20	47.37	+8.83	7.50	Cuddalore.	
45	35	76	11	13	10	30	94	51	6.7	5.9	+14	73	.752	5.4	52	...	...	35.74	33.72	+2.02	5.27	Trichinopoly.	
16	62	30	13	9	59	56	84	26	7.4	7.3	+1	74	.812	5.6	47	...	...	30.44	55.79	-25.35	3.55	Madras.	
21	10	5	5	69	35	22	21	177	8.0	...	...	71	.811	6.6	38	...	...	19.32	37.18	-17.86	1.87	Nellore . . .	MADRAS, EAST COAST, CENTRAL.
32	89	35	5	18	58	17	55	56	4.4	6.9	-36	82	.853	4.3	44	...	...	27.41	42.19	-14.78	2.59	Masulipatam.	
...	13	52	39	80	22	38	69	52	?	?	?	63	.696	4.2	31	...	...	*16.75	32.59	-15.84	2.69	Cuddapah . .	MADRAS, CENTRAL.
300	...	1	1	1	4	26	32	...	?	?	?	63	.630	2.9	36	...	...	14.16	28.57	-14.41	1.42	Kurnool.	
173	1	1	16	23	2	6	88	55	7.2	6.5	+11	65	.625	3.6	22	...	...	9.09	18.78	-9.69	1.58	Bellary.	
74	96	19	10	13	22	21	70	38	?	?	?	73	.770	4.7	52	...	...	25.02	38.69	-13.67	2.70	Rajahmundry .	MADRAS, EAST COAST, NORTH.
15	91	46	4	14	6	61	93	35	8.2	?	?	71	.728	3.3	41	...	...	25.26	38.48	-13.22	3.06	Coconada.	
...	49	10	...	2	8	47	193	56	2.9	2.8	+4	69	.745	4.6	39	...	...	18.86	47.72	-28.86	1.27	Vizagapatam.	
42	73	4	3	3	46	111	11	72	13.2	...	...	81	.785	2.3	48	...	...	32.26	52.17	-19.91	4.89	Gopalpur.	

Table

Abstract of observations taken at 8 A.M.,

METEOROLOGICAL PROVINCE OR DISTRICT.	STATION.	Height of station in feet.	PRESSURE 8 A.M. IN INCHES.							TEMPERATURE OF AIR.											
			Mean actual pres- sure (reduced to 32°) of year.	Variation from normal.	Mean pressure of year reduced to sea-level and to constant gra- vity, 45° Lat.	Highest pressure recorded during year.	Lowest pressure recorded during year.	Absolute range during year.	Mean monthly range of pres- sure.	Mean 8 A.M. of year.	Mean maximum of year.	Variation from normal of year.	Mean minimum of year.	Variation from normal of year.	Mean daily tem- perature of year.	Variation from normal of year.	Mean daily range of temperature.	Highest temper- ature observed during year.	Lowest temper- ature observed during year.	Absolute range during year.	Mean monthly absolute range.
XII.—Hill Station			...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
BELUCHISTAN	Quetta	5'502	24'647	+0'45	...	24'879	24'048	'831	'241	55'6	71'9	-1'4	43'9	-0'7	57'9	-1'1	28'1	99'1	14'8	84'3	47'6
NORTHERN INDIA	Murree	6'344	23'848	+0'27	...	24'051	23'310	'744	'264	54'7	64'0	-1'9	49'2	-1'8	56'6	-1'9	14'9	95'2	18'7	76'5	35'3
	Simla	7'274	23'046	?	...	23'229	22'806	'423	'217	53'3	61'8	-3'7	49'5	-0'3	55'6	-2'0	12'3	85'3	21'8	63'5	28'0
	Mussoorie	?	23'565	?	...	23'760	23'324	'436	'202	55'0	64'2	?	47'6	?	56'0	?	16'6	93'3	21'0	72'3	32'2
	Ranikhet	6'069	24'079	+0'11	...	24'279	23'789	'490	'199	58'1	67'2	-0'6	52'9	-0'2	60'1	-0'4	14'3	87'1	29'0	58'1	28'2
	Darjeeling	7'421	22'971	?	...	23'173	22'713	'457	'204	52'1	58'4	+0'3	46'8	+0'1	52'7	+0'2	11'6	71'6	29'3	42'3	21'5
CENTRAL INDIA	Mount Abu	3'945	26'060	+0'24	...	26'307	25'683	'624	'207	67'1	75'5	-1'0	61'2	-0'6	68'4	-0'8	14'3	92'7	35'5	57'2	26'3
	Pachmari	3'511	26'458	+0'22	...	26'726	26'022	'704	'204	70'1	79'3	+0'3	60'7	-0'2	70'0	0	18'6	100'2	36'3	63'9	31'0
SOUTH INDIA	Wellington	6'200	24'279	+0'34	...	24'404	24'146	'258	'126	62'4	71'0	+0'5	53'2	-0'8	62'1	-0'1	17'9	79'7	35'7	44'0	28'7
XIII.—Extra India			...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
PERSIA	Bushire	14	29'878	?	29'850	30'304	29'365	'939	'326	75'9	82'5	?	70'0	?	76'3	?	12'5	109'5	42'6	66'9	31'4
ARABIA	Baghdad	?	29'496	?	?	29'910	29'002	'908	'248	71'8	86'4	?	59'0	?	72'7	?	27'4	119'8	34'0	85'8	42'0
	Aden	94	29'838	?	29'863	30'070	29'532	'538	'164	82'0	88'3	?	77'8	?	83'1	?	10'5	98'1	67'4	30'7	20'0

I.

in India, Burma, etc., in the year 1891.

WIND DIRECTION.										WIND VELOCITY.			HYGROMETRY, 8 A.M.		Mean cloud amount of year.	RAINFALL.							STATION.	METEOROLOGICAL PROVINCE OR DISTRICT.
Number of Winds during year from										Mean velocity in miles per hour.	Normal.	Percentage variation.	Mean humidity of year.	Mean vapour tension of year.		Number of rainy days during year.	Normal number of rainy days.	Variation.	Rainfall of year.	Normal rainfall of year.	Variation from normal of year.	Heaviest rainfall in 24 hours during year.		
Calm.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.																
...
345	3	...	...	3	4	4	3	3	1.5	3.9	-62	56	.267	2.1	36	...	...	...	13.03	8.67	+ 4.06	0.95	Quetta . . .	BELUCHISTAN.
95	27	26	42	95	11	5	6	58	7.7	6.9	+12	55	.250	4.3	102	...	...	...	77.48	50.56	+26.92	3.71	Murree . . .	NORTHERN INDIA.
85	46	38	34	75	47	16	12	8	P	P	P	58	.259	4.6	95	...	...	...	78.59	63.91	+14.68	10.67	Simla.	
1	74	35	91	46	27	7	13	71	P	P	P	72	.336	3.7	94	...	...	...	63.24	92.02	-28.78	3.45	Mussoorie.	
244	4	6	35	8	13	29	21	5	2.7	2.2	+23	68	.385	4.0	79	...	...	...	59.56	51.04	+ 8.52	4.20	Ranikhet.	
122	5	58	70	30	8	41	24	6	5.2	4.2	+24	84	.343	5.5	106	...	...	...	93.04	122.51	-29.47	8.39	Darjeeling.	
72	32	47	11	6	2	53	81	51	7.2	7.2	0	53	.355	2.9	41	...	...	...	42.04	60.62	-18.58	6.73	Mount Abu . .	CENTRAL INDIA.
39	11	28	54	11	21	63	95	38	6.1	5.3	+15	54	.395	3.9	86	...	...	...	119.13	76.23	+42.90	7.13	Pachmarhi.	
201	20	20	14	20	20	50	10	10	2.8	3.2	-13	68	.390	4.3	87	...	...	...	78.26	50.26	+28.00	6.02	Wellington . .	SOUTH INDIA.
...
...	47	76	47	75	5	15	11	87	7.0	P	P	67	.625	...	...	...	...	...	...	13.39	...	...	Bushire . . .	PERSIA.
...	183	58	34	24	27	...	19	20	P	P	P	59	.460	...	24	...	...	...	10.83	P	P	1.10	Baghdad . . .	ARABIA.
91	...	71	120	15	23	31	4	2	0.8	13.3	-19	73	.798	3.5	4	...	...	...	3.36	2.13	+ 1.23	1.26	Aden.	

XII.—Hill Station.

XIII.—Extra India.

Table

✓
Abstract of observations recorded at 10 A.M. and 4 P.M. at 82 Stations

Meteorological Province.	STATION.	PRESSURE.							TEMPERATURE OF AIR.									
		Mean of 10 hours of year.	Mean of 16 hours of year.	Mean of daily range of year.	Mean daily pressure of year.	Variation from normal.	Mean, of year reduced to S. L. and to gravity 45° Lat.		Mean maximum of year.	Mean minimum of year.	Mean daily range of year.	Highest maximum of year.	Lowest minimum of year.	Absolute range of year.	Mean 10 hours of year.	Mean 16 hours of year.	Mean daily of year.	Variation from normal.
BURMA COAST AND BAY ISLANDS.	Port Blair	29'866	29'771	'066	29'816	+ '006	29'808		88'0	77'5	10'5	97'6	69'6	28'0	84'0	84'9	81'5	+1'2
	Mergui	'844	'737	'107	'788	- '002	'814		87'6	68'5	19'1	98'1	54'9	43'2	82'9	84'2	77'2	-1'3
	Rangoon	'880	'760	'120	'823	- '010	'798		P	72'8	P	P	59'2	P	81'8	85'4	P	P
	Diamond Island . . .	'890	'789	'101	'836	- '002	'812		86'1	72'0	14'1	93'1	64'9	28'2	82'1	82'4	77'6	-1'3
	Coco's Island	'819	'732	'088	'776	?	?		86'1	?	?	97'8	?	?	83'4	82'5	?	P
	Akyab	'891	'784	'107	'838	+ '001	'802		86'5	?	?	100'3	58'5	42'0	81'1	82'9	?	?
ASSAM	Silchar	'798	'673	'125	'738	- '002	'795		87'0	67'1	19'9	99'6	45'4	54'2	78'4	84'1	76'0	+0'5
	Sibsagar	'556	'413	'143	'485	- '035	'779		81'9	65'4	16'5	96'6	44'1	52'5	74'2	80'3	72'4	+0'1
	Dhubri	'775	'643	'132	'708	0	'776		82'8	67'5	15'3	101'5	47'8	53'7	74'9	81'2	73'8	-0'4
BENGAL AND ORISSA .	Chittagong	'814	'714	'100	'764	+ '005	'799		85'6	69'6	16'0	95'2	46'9	48'3	80'6	81'8	76'7	+0'4
	Dacca	'861	'746	'115	'804	+ '008	'774		86'4	70'2	16'2	97'5	48'7	48'8	80'2	83'8	78'0	+0'2
	Calcutta (Alipore) . .	'852	'739	'113	'793	+ '008	'760		86'4	70'4	16'0	102'7	46'2	56'5	80'6	84'1	77'9	+0'1
	Calcutta (Chowringhee)	'857	?	?	?	?	?		87'9	70'7	17'2	103'4	48'9	54'5	82'0	?	?	?
	Saugor Island	'849	'740	'109	'792	+ '009	'761		85'3	73'6	11'7	95'8	49'8	46'0	81'3	82'9	78'3	0
	Burdwan	'784	'660	'123	'719	+ '016	'765		88'4	70'6	17'8	106'5	45'2	61'3	80'4	85'6	78'4	-0'6
	Berhampore	'804	'685	'120	'742	+ '011	'758		87'0	69'5	17'5	106'2	45'6	60'6	79'5	84'7	77'3	-0'9
	False Point	'857	'753	'105	'806	- '001	'768		85'2	?	?	101'0	50'5	50'5	82'2	82'7	?	?
	Cuttack	'794	'678	'116	'740	+ '006	'763		91'0	72'4	18'6	109'1	52'9	56'2	84'0	88'4	80'3	+0'2
	Hazaribagh	27'853	27'763	'090	'808	+ '015	'772		85'0	?	?	105'0	39'9	65'1	78'5	81'9	?	?
GANGETIC PLAIN AND CHOTA NAGPUR.	Patna	29'681	29'562	'119	'620	+ '004	'751		87'2	68'1	19'0	107'0	41'3	65'7	80'8	84'8	76'9	-0'4
	Durbhunga	'718	'594	'125	'655	+ '021	'777		86'3	?	?	103'9	43'7	60'2	79'6	84'6	?	?
	Allahabad	'552	'433	'119	'488	+ '007	'755		89'9	66'2	23'7	112'7	37'5	75'2	81'6	87'9	77'2	-0'6
	Ghazipore	'650	'530	'120	'587	+ '022	'762		89'6	68'5	21'1	109'3	43'5	65'8	82'2	86'1	77'9	+1'2
	Lucknow	'493	'380	'112	'433	+ '008	'768		88'8	64'2	23'7	111'3	36'9	74'4	80'4	86'1	76'1	-1'6
	Dehra Dun	27'629	27'547	'082	27'580	+ '007	'792		80'9	60'0	20'9	103'1	35'4	67'7	72'3	76'5	69'1	-1'7
	Roorkee	28'967	28'868	'099	28'910	+ '025	'777		86'1	62'3	23'8	110'9	33'8	77'1	76'4	83'1	73'2	-0'9
UPPER SUB-HIMALAYAS .	Meerut	29'123	29'024	'099	29'066	+ '027	'781		86'3	63'0	23'3	110'2	35'5	74'7	77'4	83'5	73'8	-1'2
	Lahore	'142	'054	'088	'091	+ '016	'774		87'1	61'5	25'6	117'7	33'0	84'7	78'6	84'9	73'3	0
	Ludhiana	'020	28'930	'090	28'967	+ '002	'761		86'2	62'9	23'3	114'5	34'8	79'7	77'9	83'8	73'5	-0'4
	Peshawar	28'780	'682	'098	'724	+ '032	'838		83'6	58'8	24'9	115'0	30'1	84'9	74'3	81'2	70'1	-0'5
	Mooltan	29'429	29'326	'103	29'370	+ '015	'762		91'2	65'7	25'5	119'3	35'2	84'1	78'0	89'7	77'6	+1'3
INDUS VALLEY AND N.-W. RAJPUTANA.	Jacobabad	'676	'554	'121	'607	+ '025	'754		95'1	65'4	29'7	122'2	34'0	88'2	83'9	92'7	79'1	+0'4
	Kurrachee	'847	'756	'091	'800	+ '016	'802		86'9	69'9	17'0	103'9	47'1	56'8	81'0	83'8	77'4	+0'2
	Jeypore	28'448	28'345	'103	28'392	+ '016	'789		90'3	64'7	25'6	114'2	36'2	78'0	81'5	87'5	76'3	+0'2
E. RAJPUTANA, C. INDIA, AND GUZERAT.	Ajmere	'279	'178	'101	'225	+ '014	'803		89'7	?	?	111'0	35'0	76'0	80'2	87'7	?	?
	Deesa	29'426	29'313	'113	29'365	+ '017	'788		95'5	67'6	27'9	113'3	40'0	73'3	85'3	93'3	81'1	+1'4
	Nowgong	'103	28'995	'108	'046	+ '009	'766		88'3	64'9	23'5	114'0	36'5	77'5	80'0	86'0	75'9	-1'1
	Agra	'327	29'220	'107	'265	+ '028	'786		89'5	66'6	22'8	115'1	38'5	76'6	80'9	87'6	77'6	-0'2
	Belgaum	27'406	27'299	'107	27'352	+ '008	'798		84'9	63'9	21'0	100'0	50'5	49'5	78'2	81'4	73'1	+0'5
DECCAN	Sholapur	28'331	28'190	'140	28'262	+ '013	'790		84'3	67'7	26'6	110'2	47'9	62'3	84'3	91'6	79'9	+0'9
	Poona	'089	27'974	'115	'034	+ '021	'818		90'6	63'6	27'0	105'4	45'0	60'4	81'7	86'9	76'2	+0'4
	Akola	'969	28'835	'134	'898	+ '017	'783		92'4	66'1	26'3	111'6	41'0	69'6	82'7	90'8	79'0	-0'1

II

in India, Burma, etc., for the year 1891.

TEMPERATURE, WET-BULB.				VAPOUR TENSION.					HUMIDITY.					CLOUD.				STATION.	METEOROLOGICAL PROVINCE.
Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily of year.	Variation from normal.		
74.2	79.0	79.0	77.4	.805	.925	.916	.881	-.005	85	79	77	80	-2	5.8	6.3	6.1	+0.8	Port Blair . . .	BURMA COAST AND BAY ISLANDS.
67.0	76.6	77.2	73.6	.645	.837	.845	.776	-.037	92	75	73	80	-2	5.6	6.5	6.0	-0.2	Mergui . . .	
70.8	75.6	76.0	74.0	.734	.812	.777	.777	-.007	90	75	66	77	-2	4.6	5.3	4.9	-0.5	Rangoon . . .	
70.5	76.0	75.9	74.1	.738	.820	.814	.788	-.024	93	75	73	80	0	5.6	5.7	5.7	+0.9	Diamond Island . . .	
?	77.4	76.7	?	?	.866	.845	?	?	?	76	76	?	?	5.4	5.5	5.5	?	Coco's Island . . .	
68.7	75.2	75.9	73.2	?	.811	.812	?	?	?	76	67	?	?	4.9	4.6	4.7	+0.1	Akyab . . .	ASSAM.
65.8	72.4	73.8	70.7	.650	.738	.714	.701	-.010	93	74	60	76	-3	6.0	5.7	5.9	+0.6	Silchar . . .	
64.9	70.8	73.1	69.6	.646	.739	.742	.709	-.007	97	85	70	84	0	6.9	5.6	6.3	-0.4	Sibsagar . . .	
66.0	70.0	71.9	69.3	.645	.692	.676	.671	-.018	92	77	63	77	-1	4.2	4.0	4.1	+0.2	Dhubri . . .	
68.0	74.4	74.7	72.3	.685	.783	.779	.749	+0.001	92	74	71	79	-1	5.4	5.1	5.4	+0.9	Chittagong . . .	BENGAL AND ORISSA.
67.6	73.7	74.4	71.9	.671	.768	.746	.728	+0.027	87	73	63	74	-3	4.8	4.9	4.8	+0.3	Dacca . . .	
68.2	72.9	73.3	71.5	.694	.736	.699	.710	-.045	90	68	59	72	0	4.2	4.4	4.3	-0.1	Calcutta (Alipore) . . .	
69.2	74.6	?	?	.728	.785	?	?	?	92	70	?	?	?	?	?	?	?	Calcutta (Chowringhee) . . .	
71.0	75.4	75.7	74.0	.753	.827	.814	.798	-.027	87	75	70	78	-2	5.4	5.4	5.4	+0.7	Saugor Island . . .	
67.9	71.5	72.3	70.6	.683	.682	.639	.669	-.023	87	63	52	67	-2	4.4	4.8	4.6	+0.2	Burdwan . . .	GANGOTRI PLAIN AND CHOTA NAGPUR.
67.2	72.6	73.5	71.1	.667	.737	.696	.700	+0.008	88	71	58	73	-1	4.5	4.5	4.5	-0.4	Berhampore . . .	
70.4	75.6	75.6	73.9	.749	.818	.805	.791	+0.078	93	73	70	79	-2	5.2	5.4	5.3	+0.6	False Point . . .	
69.9	73.7	74.3	72.6	.720	.714	.676	.704	-.019	88	60	51	66	-4	4.2	4.9	4.6	+0.5	Cuttack . . .	
?	65.0	65.8	?	?	.472	.454	?	?	?	49	44	?	?	4.6	5.7	5.2	+0.6	Hazaribagh . . .	
64.7	70.4	71.0	68.7	.607	.635	.603	.615	-.010	82	59	51	64	-1	3.5	3.5	3.5	-0.6	Patna . . .	UPPER SUB-HIMALAYAS.
65.7	71.4	72.1	69.7	.651	.691	.647	.663	-.009	91	66	54	70	-1	2.5	2.1	2.3	-0.6	Durbhunga . . .	
62.0	69.2	70.1	67.1	.548	.582	.527	.552	+0.022	81	54	41	59	-2	3.4	3.7	3.6	+0.4	Allahabad . . .	
63.9	70.9	70.9	68.5	.580	.638	.584	.601	+0.039	77	57	47	60	-4	3.1	2.9	3.0	+0.1	Ghazipore . . .	
61.2	68.6	68.7	66.4	.532	.576	.532	.546	-.001	80	55	44	59	+2	3.9	4.7	4.3	+0.8	Lucknow . . .	
56.5	62.5	63.7	60.9	.445	.470	.459	.458	?	82	59	51	64	?	3.7	4.5	4.1	+0.2	Dehra Dun . . .	INDUS VALLEY AND RAJPUTANA.
58.0	65.6	67.2	63.6	.468	.524	.488	.492	+0.002	78	57	43	60	+2	2.5	2.9	2.7	-0.3	Roorkee . . .	
60.3	65.7	67.2	64.4	.536	.512	.481	.510	-.003	87	54	42	61	+3	3.2	3.3	3.3	+0.3	Meerut . . .	
57.2	65.1	66.4	62.9	.460	.476	.435	.457	-.028	80	49	37	55	+4	2.8	3.1	3.0	+0.4	Lahore . . .	
59.2	65.9	67.2	64.1	.501	.517	.487	.502	+0.001	82	54	42	59	+1	3.6	4.3	4.0	+0.6	Ludhiana . . .	
53.6	62.0	64.0	59.8	.386	.447	.416	.416	-.010	73	52	40	55	+2	3.0	3.7	3.4	+0.3	Peshawar . . .	EAST RAJPUTANA, CENTRAL INDIA AND GUZERAT.
57.8	66.0	72.9	65.5	.415	.516	.622	.517	-.017	61	53	45	53	-1	2.0	2.1	2.1	+0.4	Mooltan . . .	
58.2	66.7	68.3	64.3	.436	.465	.396	.442	-.020	65	38	26	43	-1	2.0	2.4	2.2	+0.3	Jacobabad . . .	
?	71.6	74.0	?	?	.684	.733	?	?	?	61	76	?	?	2.6	2.2	2.4	-0.8	Kurrachee . . .	
57.6	65.6	66.9	63.4	.428	.463	.430	.440	-.024	64	42	33	46	-4	3.1	4.1	3.6	+0.2	Jeypore . . .	
60.1	66.7	69.7	65.5	.504	.515	.524	.514	+0.035	74	48	40	54	+3	2.1	2.8	2.5	-0.3	Ajmere . . .	DECCAN.
60.8	67.3	68.8	65.6	.487	.454	.396	.452	-.083	64	37	26	40	-5	3.6	3.9	3.8	+0.4	Deesa . . .	
60.3	67.8	69.5	65.8	.507	.540	.526	.525	+0.017	79	53	44	58	-3	3.3	4.2	3.8	+0.3	Nowgong . . .	
60.1	67.5	69.4	65.7	.479	.532	.507	.505	+0.003	69	50	41	53	+2	3.1	3.2	3.2	-0.5	Agra . . .	
60.7	65.8	66.9	64.5	.504	.514	.489	.507	-.016	83	53	49	63	0	3.8	4.7	4.3	-0.5	Belgaum . . .	
61.9	68.9	70.8	67.2	.504	.526	.503	.519	+0.031	72	45	35	51	+1	3.7	5.4	4.6	-0.3	Sholapur . . .	
59.0	65.2	66.3	63.4	.465	.431	.401	.442	-.047	75	41	35	49	-4	3.9	4.7	4.3	-0.3	Poona . . .	
59.8	67.7	69.3	65.6	.463	.495	.441	.471	-.014	70	45	34	48	-3	3.9	4.8	4.4	+0.7	Akola . . .	

Table

Abstract of observations recorded at 10 A.M., and 4 P.M. at 82 Stations

Meteorological Province.	STATION.	PRESSURE.						TEMPERATURE OF AIR.									
		Mean of 10 hours of year.	Mean of 16 hours of year.	Mean of daily range of year.	Mean daily pressure of year.	Variation from normal of year.	Mean of year reduced to S. L., and to gravity, Lat. 5°.	Mean maximum of year.	Mean minimum of year.	Mean of daily range of year.	Highest maximum of year.	Lowest minimum of year.	Absolute range of year.	Mean 10 hours of year.	Mean 16 hours of year.	Mean daily of year.	Variation from normal.
DECCAN—continued.	Buldana	27.766	27.656	.110	27.708	+0.004	29.773	87.2	67.3	19.9	105.8	48.0	57.8	80.5	81.5	76.7	-0.3
	Khandwa	28.845	28.725	.119	28.783	+0.019	.788	90.5	65.9	24.5	111.7	40.6	71.1	81.7	88.8	77.6	-0.4
	Hoshangabad . . . . .	.875	.750	.125	.810	+0.011	.793	89.7	66.8	22.9	112.5	44.8	67.7	80.1	88.1	77.6	-0.5
	Nagpur . . . . .	.847	.716	.131	.779	+0.013	.758	91.1	68.9	22.2	115.1	48.4	66.7	82.7	88.5	79.5	0
	Sironcha	29.488	29.352	.136	29.417	-0.019	.762	93.0	72.1	20.9	114.9	48.4	66.5	83.1	90.4	82.1	+0.4
	Chanda . . . . .	.255	.124	.131	.186	+0.014	.768	92.2	67.9	24.3	114.8	43.9	70.9	83.1	89.5	79.5	-0.3
	Jubbulpore	28.541	28.423	.118	28.479	+0.017	.777	87.5	63.6	23.9	111.8	37.0	74.8	78.9	85.3	74.8	-0.7
	Saugor . . . . .	.107	27.998	.108	.050	+0.011	.763	P	P	P	P	P	P	P	P	P	P
	Raipur . . . . .	.898	28.769	.129	.831	+0.008	.741	89.6	68.9	20.7	113.7	47.7	66.0	82.4	87.8	79.0	+0.2
	Sutpa . . . . .	.810	.696	.114	.749	+0.003	.758	87.7	64.7	22.9	112.0	38.1	73.9	81.2	85.9	74.7	-1.3
	Sambalpur	29.386	29.261	.125	29.327	+0.013	.739	90.6	70.3	20.3	111.7	46.5	65.2	82.5	88.1	79.6	-0.8
	Secunderabad	28.123	27.999	.124	28.063	+0.012	.783	91.9	68.9	23.0	108.7	49.3	59.4	82.3	88.8	79.2	+0.9
WEST COAST	Bombay	29.888	29.787	.101	29.845	+0.022	.822	86.3	74.7	11.6	93.2	58.5	34.7	81.0	82.9	79.7	+0.2
	Ratnagiri . . . . .	.819	.722	.096	.766	+0.019	.814	88.8	71.9	16.9	102.4	58.4	44.0	85.5	84.6	79.3	+0.1
	Karwar . . . . .	.899	.801	.098	.846	+0.014	.822	87.1	73.1	14.0	94.7	60.1	34.6	81.4	80.4	79.4	+0.8
	Cochin . . . . .	.952	.847	.105	.895	+0.010	.833	87.6	75.1	12.7	93.3	65.8	27.5	83.8	84.8	80.7	+0.4
SOUTH INDIA	Salem . . . . .	.010	28.847	.144	28.956	+0.003	.823	94.7	72.2	22.5	106.0	58.0	48.0	84.5	91.0	81.6	+2.1
	Mercara	26.258	26.168	.090	26.213	+0.005	.861	77.5	61.5	16.0	92.0	49.5	42.5	69.8	72.4	67.8	+0.1
	Trichinopoly	29.677	29.536	.141	29.615	+0.004	.801	94.7	74.8	19.9	106.4	62.4	44.0	86.1	91.8	83.1	+1.1
	Madras . . . . .	.821	.860	.113	.856	+0.014	.809	92.4	75.7	16.8	107.3	61.7	45.6	89.3	81.0	82.2	+0.4
	Bellary	28.445	28.311	.134	28.380	+0.014	.780	93.9	71.0	22.9	106.6	51.0	55.6	84.7	90.9	81.3	+0.7
	Vizagapatam	29.864	29.750	.114	29.804	+0.008	.773	86.0	78.1	7.9	100.0	61.0	39.0	84.6	85.7	82.0	-0.7
HILL STATION, BELUCHISTAN.	Quetta	24.656	24.584	.073	24.613	+0.034	P	72.1	44.0	28.1	99.2	14.9	84.3	64.4	69.5	57.5	-0.7
HILL STATIONS, NORTHERN INDIA.	Leh	19.723	19.630	.093	19.671	+0.009	P	55.2	29.5	25.7	86.3	-7.8	94.1	45.5	50.8	39.4	-1.7
	Murree	23.871	23.843	.029	23.850	+0.027	P	64.0	48.9	15.1	95.0	18.5	76.5	58.6	59.8	55.3	-1.6
	Chamba	26.902	26.823	.079	26.870	+0.013	P	76.6	55.4	21.3	107.2	32.2	75.0	65.8	71.5	63.8	-1.5
	Kailang	20.798	20.739	.059	20.775	+0.014	P	54.3	30.7	23.6	82.1	-3.6	85.7	45.3	49.0	40.2	-0.8
	Simla	23.071	23.022	.048	23.039	0	P	61.8	49.4	12.3	84.3	21.8	62.5	56.7	58.6	54.9	-0.8
	Chakrata . . . . .	.272	.222	.050	.239	+0.013	P	P	48.8	P	84.0	22.1	61.9	58.6	59.0	P	P
	Ranikhet	24.099	24.043	.055	24.059	+0.007	P	67.1	52.9	14.2	87.1	29.0	58.1	62.1	63.9	59.1	-0.8
	Pithoragarh . . . . .	.759	.694	.065	.714	+0.036	P	71.3	53.7	17.6	91.2	30.8	60.4	64.4	69.1	61.9	-0.8
	Katmandu	P	P	P	P	P	P	83.6	52.0	31.6	98.6	29.0	69.6	78.7	83.3	65.1	0
	Darjeeling	22.498	22.916	.062	22.949	+0.005	P	58.4	47.0	11.4	71.7	29.3	42.4	54.8	55.5	52.0	+0.2
	Demagiri	P	P	P	P	P	P	84.6	69.0	15.5	93.4	47.8	45.6	78.7	83.3	76.5	+1.7
	Tura	P	P	P	P	P	P	81.8	68.2	13.6	96.8	51.4	45.4	75.7	78.9	74.3	P
	Mount Abu	26.070	25.998	.073	26.030	+0.014	P	75.5	61.4	14.1	92.6	35.5	57.1	70.7	72.0	68.0	-0.4
	Pachmarhi . . . . .	.473	26.385	.088	.428	+0.018	P	79.3	P	P	100.2	36.3	63.9	73.6	76.6	P	P
	Chikalda . . . . .	.336	.247	.089	.289	+0.004	P	79.1	63.9	15.2	98.6	46.3	52.3	72.8	77.1	71.1	-0.1
HILL STATIONS S. INDIA.	Wellington	24.287	24.214	.073	24.251	+0.021	P	71.0	53.3	17.7	79.5	35.6	43.9	66.4	66.0	61.9	+0.8
EXTRA INDIA	Aden	29.847	29.724	.122	29.786	+0.004	29.811	88.2	77.8	10.4	97.3	67.4	29.9	84.1	85.8	82.4	+0.4

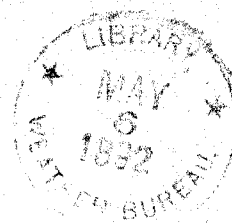
* The hours of observation are 14 and 20 hours

II—concluded.

in India, Burma, etc., for the year 1891—concluded.

TEMPERATURE, WET-BULB.				VAPOUR TENSION.					HUMIDITY.					CLOUD.				STATION.	Meteorologic Province.
Mean minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	From minimum.	Mean 10 hours.	Mean 16 hours.	Mean daily.	Variation from normal.	Mean 10 hours.	Mean 16 hours.	Mean daily of year.	Variation from normal.		
58.9	64.8	65.1	63.0	.415	.432	.393	.420	-.055	60	43	36	47	-6	3.2	3.3	3.3	-.08	Buldana	DECCAN—contd.
59.0	67.2	68.9	65.0	.454	.504	.471	.476	-.024	66	46	36	50	-3	2.9	3.3	3.1	-.03	Khandwa	
61.0	68.2	71.0	66.7	.502	.570	.570	.547	+.025	72	55	45	57	+1	3.2	3.9	3.6	0	Hoshangabad	
61.2	68.8	70.1	66.7	.470	.549	.521	.513	-.006	65	51	42	52	-1	3.4	4.5	4.0	-.05	Nagpur	
67.1	72.7	73.7	71.2	.619	.677	.616	.637	-.001	78	61	47	62	-1	3.8	4.5	4.2	+.04	Sironcha	
63.8	69.8	71.3	68.3	.565	.565	.533	.554	-.018	82	52	41	58	-1	3.1	4.2	3.7	-.07	Chanda	
59.8	66.9	68.3	65.0	.505	.533	.500	.513	+.011	82	55	44	60	+3	3.2	3.8	3.5	+.05	Jubbulpore	
P	P	P	P	?	?	?	?	?	?	?	?	?	?	P	?	?	?	Saugor	
62.9	69.2	70.0	67.3	.517	.554	.511	.527	-.020	72	52	42	55	-2	4.4	5.4	4.9	+.09	Raipur	
59.5	66.6	67.2	64.4	.483	.501	.460	.481	+.024	76	47	39	54	-4	2.4	2.9	2.6	-.06	Sutna	
66.0	72.2	72.7	70.3	.612	.669	.614	.632	-.026	80	61	49	63	-2	3.8	3.9	3.9	+.03	Sambalpur	WEST COAST.
64.7	71.0	72.1	69.3	.574	.623	.596	.597	+.057	80	56	45	60	+2	3.9	4.7	4.3	+.06	Secunderabad	
69.9	73.5	75.0	72.8	.689	.739	.770	.733	-.046	78	69	68	72	-5	3.6	3.5	3.6	-.07	Bombay	
67.5	73.8	75.5	72.3	.631	.688	.767	.707	-.032	79	57	65	70	-2	2.3	2.5	2.4	-.06	Ratnagiri	
70.7	74.1	76.1	73.6	.731	.753	.791	.759	-.004	89	70	67	76	-2	2.7	3.0	2.8	-1.0	Karwar	
73.4	76.8	77.5	75.9	.803	.832	.847	.827	+.013	92	72	71	78	-2	3.6	4.7	4.2	-.05	Cochin	SOUTH INDIA.
69.8	74.8	76.1	73.6	.704	.736	.704	.715	+.023	89	62	50	67	-1	4.1	5.8	5.0	+.06	Salem	
59.3	64.3	65.6	63.1	.488	.544	.555	.529	-.007	88	75	72	78	-2	6.5	7.2	6.8	+.03	Mercara	
71.6	74.8	75.6	74.0	.739	.710	.670	.707	+.010	85	58	47	63	-1	5.0	5.4	5.2	+.06	Trichinopoly	
?	83.3	78.7	79.1	?	.797	.849	.820	+.047	?	59	80	75	+2	5.1	4.4	5.0	+.01	Madras	
64.7	71.7	72.1	69.5	.545	.621	.555	.574	+.032	71	52	39	54	+1	4.2	5.4	4.8	-.01	Bellary	HILL STATION, BELUCHISTAN.
70.7	74.6	75.8	73.7	.656	.742	.774	.724	-.045	67	61	62	63	-5	4.9	4.7	4.8	+.09	Vizagapatam	
40.9	49.9	51.0	47.3	?	.227	.196	?	?	79	39	30	49	-1	2.3	3.2	2.7	+.05	Quetta	
25.7	34.8	38.5	33.0	.124	.138	.150	.137	+.005	72	46	42	53	-4	5.0	6.2	5.6	+.02	Leh	
42.7	49.0	50.3	47.3	.231	.276	.294	.267	-.014	64	54	56	58	+2	4.7	6.0	5.4	+.07	Murree	HILL STATIONS, NORTHERN INDIA.
51.5	57.0	59.8	56.1	.367	.396	.411	.391	-.007	77	60	53	63	+4	4.6	6.0	5.3	+.05	Chamba	
28.8	37.4	39.0	35.0	.162	.183	.176	.174	-.008	84	54	48	62	0	4.7	6.3	5.5	-.01	Kailang	
43.1	48.3	50.2	47.1	.236	.273	.299	.270	-.026	62	55	59	58	-2	5.0	6.1	5.6	+.06	Simla	
44.6	51.1	51.5	49.1	.271	.317	.327	.305	+.010	73	62	63	67	+3	4.2	5.5	4.9	+.02	Chakrata	
47.7	54.0	55.5	52.4	.298	.354	.373	.342	+.001	70	62	62	65	+1	4.4	5.3	4.9	+.05	Ranikhet	HILL STATIONS, C. INDIA.
49.9	57.3	58.4	55.2	.343	.420	.396	.387	+.008	77	67	54	66	+2	4.5	5.1	4.8	+.04	Pithoragarh	
?	?	?	?	?	?	?	?	?	?	?	?	?	?	1.9	3.1	2.5	-2.0	Katmandu	
44.6	51.4	52.4	49.5	.290	.362	.380	.344	-.008	84	80	82	82	-2	6.1	6.6	6.4	-.01	Darjeeling	
?	?	?	?	P	?	?	?	P	?	?	?	?	?	1.9	3.1	2.5	0	Demagiri	
?	68.7	70.3	?	?	.642	.660	?	?	?	71	66	?	?	4.1	3.9	4.0	-.05	Tura	HILL STATIONS, S. INDIA.
53.4	58.1	59.3	56.9	.338	.358	.362	.356	-.002	59	47	43	50	-1	3.1	3.3	3.2	-.06	Mount Abu	
?	60.5	61.4	?	P	.394	.387	?	?	?	49	45	?	P	3.8	4.6	4.2	?	Pachmari	
56.7	61.3	62.6	60.2	.393	.422	.412	.407	-.027	65	63	48	55	-4	4.2	5.0	4.6	+.04	Chikalda	
50.9	58.5	59.1	56.1	.357	.413	.432	.401	+.011	86	65	69	73	+1	5.3	6.4	5.9	+.02	Wellington	
71.7	75.7	75.0	74.2	.703	.785	.733	.740	-.008	74	67	59	67	-1	2.9	1.4	2.2	-.04	Aden	EXTRA INDIA.

and means are as given in the register.



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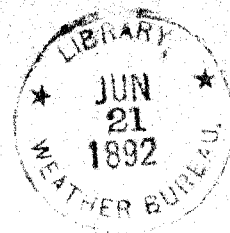
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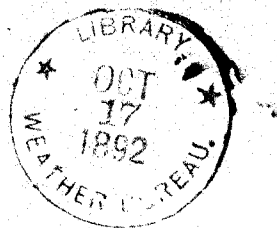
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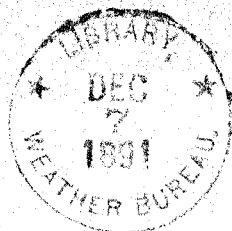
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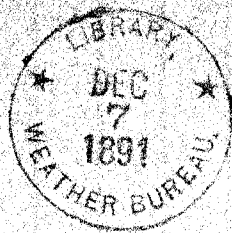
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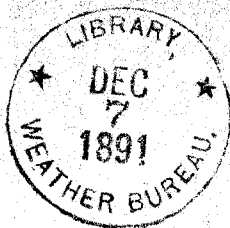
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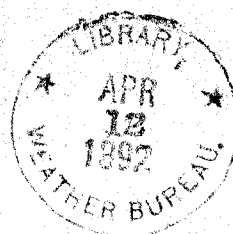
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